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Abstract

We examine the determinants of the occurrence and magnitude of surges of fund flows, i.e. aggregate cross-border investments in local equity and bond markets by global funds, such as mutual funds, exchange traded funds, closed-end funds and hedge funds. Our analysis, based on monthly data for 55 countries, suggests that although most global factors are significant, they can only explain a small part of the surges in fund flows. Domestic pull factors and contagion factors increase the explanatory power of the model. Our results also suggest that notably domestic factors affect the magnitude of surges.

Key words: surges; international fund flows; push and pull factors; bond flows; equity flows

JEL classification: F30; F32; F38; G23

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1. Introduction

We study surges of international fund flows, where a surge refers to exceptionally large capital inflows (Ghosh et al., 2014). Surges appear to contribute to asset price bubbles, credit booms and more volatile economic cycles (Reinhart and Reinhart, 2009; Cardarelli et al., 2010; Forbes and Warnock, 2012). Therefore, several studies investigate the characteristics and drivers of surges of (net or gross) capital flows (Forbes and Warnock, 2012; Ghosh et al., 2014; Burger and Ianchovichina, 2014; Calderon and Kubota, 2014).

In this paper, we concentrate on surges of one specific type of capital flows, namely fund flows. We define fund flows as aggregate cross-border investments in local equity and bond instruments by global funds, including mutual funds, exchange traded funds (ETFs), closed-end funds, insurance-linked funds, and hedge funds. They are portfolio investments in the IMF's balance of payment classification.[1] During the 1990s, the far-reaching deregulation of financial markets in industrial countries and the privatization in emerging market economies made it easier both for foreign investors to access local markets and for domestic investors to allocate their assets globally (Bekaert and Harvey, 1998; Gelos, 2013). These cross-border investments usually occur through dedicated emerging market funds or globally active funds (Gelos, 2013). Consequently, the volume of international fund flows strongly increased over the last two decades. Figure 1 shows that assets under management by global funds (covered by the Emerging Portfolio Fund Research (EPFR) Global Database used in this paper) increased more than 150 times; expanding from 150 billion US dollars in 2000 to 25,000 billion US dollars in 2015. In that year, equity and bond investments accounted for more than 70% of the total assets of funds. The volume of equity flows increased by more than forty times between 1996 and 2013 to reach a level of 62.8 USD billion. The volume of bond flows reached an unprecedented level of 62.9 USD billion in 2012 (see Figure 2).

[Insert Figure 1 and Figure 2]

[1] The Sixth Edition of the IMF's Balance of Payments and International Investment Position Manual (BPM6) categorizes international capital flows into five types: direct investment, portfolio investment, financial derivatives and employee stock options, other investments, and reserve assets.

Compared with other types of capital flows, fund flows are more volatile as shown in Table 1, which compares the standard deviation of different types of capital flows for some selected countries. In addition, fund flows are more susceptible to reversal when investors get new information (Levchenko and Mauro, 2007; Sula and Willett, 2009; Gelos, 2013). For example, as shown in Figure 3, most countries witnessed fund inflows in 2007 except for the U.S. and China, but almost all countries faced outflows in 2008 when the U.S. subprime crisis hit the world. Similarly, only Western European countries experienced fund outflows in 2010, while in 2011 all countries experienced fund outflows. This suggests that fund flows play an important role in the transmission of shocks (Jinjarak et al., 2011; Raddatz and Schmukler, 2012). Furthermore, surges of international fund flows may trigger and prolong asset price bubbles and amplify financial fragility (Tillmann, 2013). Given the volatility and the mutability of fund flows, we deem it of high academic and policy relevance to investigate this particular type of international capital flows.

[Insert Table 1 and Figure 3]

So far, there is only limited research regarding the characteristics and determinants of surges of international fund flows (see section 2 for a discussion of the literature). Issues addressed in the present paper are: How many waves of surges can be identified during the last decades? Are global "push" factors or domestic "pull" factors driving surges of fund flows? And do these factors drive the magnitude of surges?

To address these questions, we use monthly data of international fund flows for 55 countries from January 1996 to June 2013 from the EPFR Global Database, which tracks the flows and allocations of more than 62,500 funds globally. We first build a database of surge episodes for equity flows and bond flows and then compare the differences between countries in different income and regional groups. Similar to net capital flows (Cardarelli et al., 2010; Ghosh et al., 2014), surges of fund flows tend to be synchronized globally. There are three waves of equity fund flow surges during 1996 to 2013: one in the 1990s (which ended before the East Asia financial crisis), one in the early 2000s (which ended with the global financial crisis in 2008) and one in the late 2000s. We identify two waves of surges of bond fund flows between 2004 and 2013, which coincide with waves of surges of equity flows.

Following Ghosh et al. (2014), we investigate the determinants of the occurrence of fund flows surges as well as the magnitude of fund flow surges, distinguishing between global, contagion and domestic variables (see section 2 for details). Specifically, global variables capture global economic and financial shocks, and policy uncertainty. Contagion variables capture the contagion effects through geography and trade linkages. Domestic variables include economic fundamentals and policy variables. Our results suggest that global factors, contagion and domestic policy drive the occurrence of surges of international fund flows. However, notably domestic factors affect the magnitude of surges. Several sensitivity analyses suggest that these findings are robust. In addition, we test the predictive ability of the variables out of sample. Our results indicate that the explanatory variables included in our model for the occurrence of surges have strong predictive power; close to 90% of the episodes are correctly identified.

The remainder of the paper is organized as follows. Section 2 offers a background discussion, summarizing previous studies and outlining the hypotheses tested in the empirical analysis. Section 3 describes the data used and identifies surge episodes in fund flows. Section 4 introduces the models employed and outlines the global, contagion and domestic factors used in the models (section 2 provides the motivation for these variables). Sections 5 and 6 present the results for the determinants of the occurrence and the magnitude of these surges, respectively. Section 7 concludes.

2. Background

There is an extensive literature trying to identify global (push) and domestic (pull) factors that influence capital flows to recipient countries. As pointed out by Ghosh et al. (2014), in equilibrium capital flows must reflect the confluence of push (supply-side) and pull (demand-side) factors so that it will be hard to attribute the observed flows to one side or the other. Therefore, it may be more meaningful to consider the determinants of inflows that are abnormally large, referred to as ‘surges’ (Ghosh et al., 2014) or ‘bonanzas’ (Reinhart and Reinhart, 2009). Furthermore, Ghosh et al. (2014) show that the association between net capital flows and push and pull factors depends significantly on the magnitude of the flow. In other words, surges are not just scaled-up normal flows, but rather behave qualitatively differently from normal inflows so that it makes sense to focus on the drivers of

large capital inflows.[2]

From a policy perspective, identifying the drivers of surges is certainly important. If economic conditions that are external to receiving countries play a large role in driving large capital inflows, receiving countries are vulnerable to changes in foreign investor sentiment and to shocks in the external environment (Calderón and Kubota, 2014). Likewise, to the extent that surges are driven by contagion rather than by fundamentals the case for imposing capital controls is correspondingly stronger, at least from the perspective of the receiving country (Fratzscher, 2012; Ghosh et al., 2014). An analysis of the drivers of surges is also important in view of their impact on financial stability: massive capital inflows may lead to credit build-up and asset price booms, which may end up in a systemic banking crisis (Tornell and Westermann, 2002). Capital controls are therefore considered as a macro-prudential policy instrument (see Claessens et al., 2017).

There are multiple definitions of surges. Several papers use the threshold method to identify surges. For instance, Reinhart and Reinhart (2009) employ the 20th percentile of net capital flows as percentage of GDP to identify surges in 181 countries from 1980 to 2007. Ghosh et al. (2014) define a surge if capital inflows are both in the top 30th percentile of the country's own distribution of net capital flows as percentage of GDP and in the top 30th percentile of the whole sample. As these authors point out, the reasons for identifying surges based on the country-specific distribution of net capital flows as well as the sample-wide criterion is to ensure that surges are not only "large" by the country's own experience but also by cross-country standards. This definition prevents countries experiencing very small inflows through most of the sample period as having surges. In our empirical analysis, we therefore mostly reply on the approach suggested by Ghosh et al. (2014) to identify surges, but we will also employ the definition of Reinhart and Reinhart (2009) to examine whether this leads to very different surge periods (it does not).

Alternatively, surges can be identified on the basis of their deviations from trend (in combination with a cut-off point). For instance, Cardarelli et al. (2010) define surges based on the deviation of net private capital inflows to GDP from trend, determined by an HP filter. Their cut-off point is one

[2] Testing for the difference between the 75th percentile and the 90th percentile of net capital flows, Ghosh et al. (2014) find that seven (out of a total of 14) coefficients of the drivers of surges are statistically significantly different.

standard deviation. Similarly, Forbes and Warnock (2012) and Calderón and Kubota (2014) define surges as an annual increase in gross capital inflows that is more than one standard deviation above the 5-year rolling average and at least two standard deviations above this average in at least one quarter. However, this approach only considers country-specific trends and therefore suffers from the problem identified by Ghosh et al. (2014).

As will be explained in more detail in section 3, our data refer to the sum of inflows of investments by global funds. We focus on fund flows as these are among the most volatile capital flows (Eichengreen et al., 2017) and therefore deserve special attention. It is not obvious that surges in fund flows and their magnitude are driven by the same factors as other types of capital flows.

Despite their importance, there is hardly research on surges of international fund flows. Fratzscher (2012) investigates the drivers of international fund flows (but not surges) to 50 countries during and after the global financial crisis. He concludes that global common shocks exert a larger effect on fund flows than country-specific factors. Gauvin et al. (2014) find that increases in US policy uncertainty significantly reduce international fund flows into emerging markets. The paper that comes closest to our research is the one by Puy (2016) who defines periods of at least two consecutive month inflows (outflows) as "surge phase" ("retrenchment phase"). Using a "diffusion index" to measure the share of countries experiencing the same phase each month he concludes that international portfolio flows exhibit strong cyclical behavior at the world level. Our analysis complements this work by identifying the determinants of the occurrence and magnitude of surges of fund flows. To this end, we systematically account for plausible drivers of the occurrence and magnitude of surges—including a range of global push, domestic pull and contagion factors—and exploit a unique database of EPFR Global (see section 3 for details).

Following previous studies, we pool advanced economies and emerging market economies (EMEs) in our analysis. However, Ghosh et al. (2014) argue that capital flow dynamics for these two groups of countries may be quite different (EMEs, for instance, typically borrow in foreign currency). We therefore also run separate models for advanced countries and EMEs. Several previous studies have examined the determinants of large increases in (gross or net) capital inflows (Forbes and Warnock, 2012; Ghosh et al., 2014; Tillmann, 2013; Burger and Ianchovichina, 2014; Calderón and Kubota, 2014). Following Calderón and Kubota (2014) and Ghosh et al. (2014), we cluster these determinants in three categories, namely global (or push), domestic (or pull) and contagion variables.

Global factors reflect external conditions largely beyond the control of receiving countries that affect the supply of global liquidity and induce investors to increase their exposure abroad (Ghosh et al., 2014). *Push factors* include factors such as foreign growth (Fratzscher, 2012), world interest rates (Gauvin et al., 2014), global equity performance (Fratzscher, 2012), global liquidity (Gauvin et al., 2014), global risk (Gauvin et al., 2014), commodity prices (Ghosh et al., 2014) and policy uncertainty (Calderón and Kubota, 2014). Several studies report that global factors are important determinants of surges. For instance, Calderón and Kubota (2014) find that foreign growth has a positive coefficient (although it is only significant for their sample of developing countries), arguing that strong economic growth attracts "foreign investors to pull massive capital flows into developing countries" (p. 3). They also find that a higher world real interest rate and higher global equity returns have a negative and significant coefficient. Likewise, Ghosh et al. (2014) report that global factors, including US interest rates, and global risk aversion, are key factors associated with large net capital flows in EMEs. Arguably, higher world interest rates and equity returns makes investing abroad less attractive for advanced economies and will therefore reduce the probability of surges in emerging countries. Ghosh et al. (2014) argue that higher risk aversion is likely to be associated with lower surges since most emerging countries receiving capital inflows aren't safe havens in times of increased uncertainty. Higher commodity prices may be positively correlated with inflows inasmuch as they indicate a boom in demand for receiving countries' exports (Ghosh et al., 2014). Policy uncertainty in the advanced world may also affect the behavior of foreign investors and, hence, the likelihood of surges. Gauvin et al. (2014) argue that theoretically the impact of policy uncertainty is ambiguous. On the one hand, a less predictable political environment hinders domestic growth prospects decreasing the attractiveness of investing in a given country. On the other hand, higher policy uncertainty may impact an advanced economy investor's willingness to take risk and lead to more capital flows into countries perceived as safe. Greater uncertainty may then have a similar impact on portfolio flows as measures of risk appetite. Using the index of US policy uncertainty of Baker et al. (2013), Calderón and Kubota (2014) and Gauvin et al. (2014) find that higher policy uncertainty is associated with fewer surges and lower capital flows, respectively.

Even though several studies report that the coefficients of (some) push factors are statistically

significant, global factors combined often have limited explanatory power (cf. Ghosh et al., 2014).[3] Our first hypothesis therefore is that global factors, if significant, can only explain a small part of the surges in fund flows. To test this hypothesis, we include the different categories of explanatory variables stepwise in our model (to be explained in section 4), starting with push factors.

Pull factors are recipient-country characteristics that affect risks and returns to investors, and depend on local macroeconomic fundamentals, official policies, and market imperfections (Fernandez-Arias and Montiel, 1996). Pull factors considered in previous studies include economic fundamentals (such as industrial production, domestic interest rates and inflation, domestic equity returns, exchange rate depreciation, trade openness, credit growth and stock market capitalization), and policy variables (such as financial openness and the exchange rate regime).

Fast-growing economies are more likely to experience large capital flows. Next to their potentially large financing needs, this is also because investors may be attracted to the potential productivity gains and corresponding returns. Forbes and Warnock (2012) report that domestic economic growth is the key pull factor explaining gross inflow surges. As argued by Ghosh et al. (2014), if capital flows respond to interest rate and return differentials they will be larger when expected returns in receiving countries are higher. We therefore include domestic interest rate and equity returns, domestic inflation (which may also be considered as a proxy for monetary stability; cf. Fratzscher, 2012), and the depreciation of the domestic currency as pull factors. Higher domestic interest rates and equity returns, lower inflation and greater currency appreciation are likely to be associated with a higher probability of surges. We also consider trade openness, stock market capitalization and credit growth. A country's trade openness and financial development may increase its attractiveness as an investment destination, thereby increasing the likelihood of surges (Ghosh et al., 2014). Credit growth captures the credit conditions.

As to the domestic policy variables, financial openness is potentially important. Even if a country has an external financing need, this may not be met if the capital account is closed (Ghosh et al., 2014). Following Ghosh et al. (2014), we also include the de facto exchange rate regime to capture the possibility that the implicit guarantee of a fixed exchange rate may encourage greater cross-border borrowing.

[3] An exception is Forbes and Warnock (2012) who find that that push factors are the main drivers of surges in gross inflows.

There is evidence that several domestic factors are associated with surges. For instance, Ghosh et al. (2014) report that whether a particular country experiences a surge not only depends on push factors[4] but also depends on its own attractiveness as an investment destination, including the country's output growth, interest rates, financial openness and exchange rate regime. Adding these pull factors more than doubles the pseudo-R^2. These authors therefore conclude that this explains why even though inflow surges tend to be synchronized, not all countries experience a surge when, in aggregate, capital flows toward EMEs. Similarly, Calderón and Kubota (2014) conclude that for the developing countries in their sample pull factors play a larger role than push factors. They report that the incidence of surge episodes is smaller in countries with more flexible exchange rate regimes while they are more likely to occur in countries with greater financial openness

Based on the findings of previous studies, our second hypothesis is that domestic pull variables are important drivers of surges in fund flows and increase the explanatory power compared to a model that only considers global push factors.

Apart from push and pull factors, some studies include *contagion effects* to explain the behavior of capital flows (Forbes and Warnock, 2012; Ghosh et al., 2014; Calderón and Kubota, 2014). Like push factors, contagion factors—generally defined as resulting from circumstances in another country or group of countries (but not the entire world)—are outside a country's control (Forbes and Warnock, 2012). As pointed out by Forbes and Warnock (2012), the various transmission mechanisms for contagion can be broadly broken into contagion through trade channels, financial channels and "country similarities" (such as a shared regional location or similar economic characteristics). Several studies suggest that contagion factors are associated with surges. For instance, Calderón and Kubota (2014) use a regional dummy, which takes the value one if another country in the same region experiences a surge, and find that it is statistically significant. Likewise, Ghosh et al. (2014) report regional contagion (defined as the proportion of other countries in the region experiencing a surge) positively relates to surges (though the estimated coefficient for the latter becomes statistically insignificant after controlling for the full set of domestic pull factors). Forbes

[4] Ghosh et al. (2014) find that even in times of global surges, not all EMEs are affected. In fact, the proportion of EMEs experiencing an inflow surge in any given year never exceeds one-half of the sample, with some countries experiencing them repeatedly. This suggests that conditions in the recipient countries must also be relevant.

and Warnock (2012) employ three measures to capture contagion, namely geographic proximity, trade linkages and financial linkages. Their results suggest that contagion plays an important role in explaining surges. Our third hypothesis therefore is that, in addition to push and pull factors, contagion plays an important role in explaining surges of fund flows.

Fratzscher (2012), who investigates the drivers of international fund flows (but not surges) to 50 countries during and after the global financial crisis, reports that global common factors were more important overall as a driver of net capital flows during the 2007–08 financial crisis. However, in the recovery period since March 2009, common factors appear to have become less important as drivers of global capital flows, whereas domestic pull factors have come to dominate in explaining capital flows, in particular for countries in Emerging Asia and Latin America. Likewise, Gauvin et al. (2014) find the existence of a structural break in the effect of changes in policy uncertainty on capital flows in 2007.Q2 when the first signs of investor unease related to the financial crisis emerged. These findings suggest that the importance of push and pull factors in explaining surges may have changed over time. To examine this fourth hypothesis we examine whether our findings are different for the sample period after the financial crisis.

Whereas most literature focuses on the probability of surges, Ghosh et al. (2014) also look at why the magnitude of the flow varies across surges. Employing data on net capital flows for 56 emerging market economies from 1980 to 2011, Ghosh et al. (2014) report that the magnitude of the surges also varies considerably across countries. For example, Asian countries experienced the largest surges during the 1990s wave of capital flows, whereas emerging Europe experienced the largest surges in the mid-2000s. These authors find that domestic factors, notably policy variables, play an important role in determining the magnitude of surges. Especially countries that have less flexible exchange rate regimes, or those that are more financially open, experienced larger surges. Ghosh et al. (2014, p. 273) therefore conclude that "global factors may act largely as "gatekeepers"—capital surges toward EMEs only when these global conditions permit, but once this hurdle is passed, the volume of capital that flows is largely independent of it." Following Ghosh et al. (2014) we examine the drivers of the magnitude of surges of fund flows. Based on the findings of these authors, our fifth hypothesis is that domestic variables are the most important drivers of the magnitude of surges in fund flows.

3. Identifying surges in fund flows

3.1 Data on fund flows

Our data comes from Emerging Portfolio Fund Research (EPFR) Global, which tracks the asset allocation of more than 62,500 funds globally and 25 trillion assets under management. The database covers around 98%-99% of emerging market equity funds and over 95% of ETF assets globally. Most funds covered by EPFR are domiciled in advanced countries.

There are two alternative databases on international fund investments: Thomson Financial Securities (TFS) and State Street Bank and Trust (SSB). The former one provides quarterly information on global equity holdings and targeted equities of one type of funds (namely mutual funds), and the latter one provides daily information but with much narrower coverage. As pointed out by Jinjarak et al. (2011), the key advantages of the EPFR database are the long period for which data are available and the coverage of both international bond and equity investments by global funds. According to Fratzscher (2012), the strength of EPFR data is not only its disaggregated information at the fund level, but also its high time frequency. Jotikasthira et al. (2012) and Moussavi (2014) show that EPFR portfolio flows and balance-of-payments data closely match. Several previous studies have employed this database as well (cf. Kaminsky et al., 2001b; Hsieh et al., 2011; Fratzscher, 2012; Jotikasthira et al., 2012; Raddatz and Schmukler, 2012; Puy, 2016).

We employ two EPFR reports to obtain country flows—the fund flow reports and country allocation reports—and combine these data sets to construct the overall flows of cash into or out of one specific country by all global funds. We calculate country-level fund flows by aggregating the flows of each fund and multiplying it by the fund's portfolio allocations in a specific country. Fund inflows into one specific country may be due to the injections by individual investors or the increase of funds' asset allocation into this country. Likewise, fund outflows may due to the redemption of funds or the decrease of funds' asset allocation into this country. Table 2 describes the asset allocation of funds in different regions. Around 90% of funds' assets are based in developed markets, where North America accounts for 64.67% of equity funds and 71.02% of bond funds. Only 10% of fund assets are based in emerging market economies, where emerging Asia attracts 7.35% of equity funds and 3.73% of bond funds.

[Insert Table 2]

In our analysis we scale fund flows by assets under management of each receiving country (cf. Fratzscher, 2012; Puy, 2016). We employ monthly data and engage in data cleansing. Firstly, we excluded countries with less than 24 observations. Secondly, we excluded all countries with an estimated allocation of bond or equity investments by global of less than 100 million USD. Thirdly, we winsorized the data at the 1% and 99% level (cf. Gauvin et al., 2014). In the end, we have fund flows data for 55 countries, including 32 advanced countries and 23 emerging countries.[5] However, in the regression model, we delete Taiwan due to lack of macro-economic data. We exclude the US as we rely on its macroeconomic data as our proxy for global variables. Therefore, in the regression analyses our sample consists of 53 countries. The time span is from January 1996 to June 2013 for equity flows and from January 2004 to June 2013 for bond flows. We also divide our sample according to regions as shown in Appendix 1 (cf. Puy, 2016).

3.2 Identifying surges

We define surges of fund flows with both the method suggested by Ghosh et al. (2014)—henceforth the GQK method—and the approach suggested by Reinhart and Reinhart (2009)—henceforth the RR method. Under the GQK method, a surge episode occurs when fund flows scaled by assets under management lies both in the top 30th percentile of a specific country's distribution of fund flows and in the top 30th percentile of the entire sample's distribution. The definition is as follows:

$$S_{j,t} = \begin{cases} 1, if \;\; K_{j,t} \in \left\{top \;\; 30^{th} \;\; percentile \;\; \left(K_{j,s}\right)_{s=1}^{T}\right\} \cap \left\{top \;\; 30^{th} \;\; percentile \;\; \left(K_{i,s}\right)_{i=1,s=1}^{N,T}\right\} \\ 0, otherwise \end{cases} \tag{1}$$

where $S_{j,t}$ is the indicator of a surge episode for country j at time t and $K_{j,t}$ is the fund flows scaled by assets under management. If consecutive months meet the criteria, each month is labeled as a surge episode. In order to check the robustness of our findings, we also define surges of fund flows based on the RR method, under which the threshold to identify a surge is set at the 20th percentile of fund flows (as percentage of assets under managements) of a country's own distribution.

Applying the GQK method and the RR method to equity and bond flows we arrive at the

[5] Low-income and middle-income economies are referred to as emerging economies. High-income economies are referred to as advanced economies. Economies are divided according to their GNI per capita in 2012 following the World Bank atlas.

following stylized facts. First, as shown in Figure 4, the results based on the GQK method are very similar to those of the RR method. That is why in the remainder of our analysis we focus on the surges identified using the GQK method.

[Insert Figure 4]

Second, surges of fund flows tend are synchronized from an international perspective. There are three waves of equity flows during 1996 to 2013. The first wave ended before the East Asia financial crisis and the Russian default. The second wave started in 2002 and ended with the global financial crisis in 2008. The third wave started in the recovery period after the financial crisis. These fund flow surge periods are quite similar to those based on net capital flows (cf. Cardarelli et al., 2010; Ghosh et al., 2014), but the surge peaks of fund flows are earlier than those of net capital flows. For example, in the second wave, fund flow surges peak between 2003-2005, whereas net capital flow surges peak in 2006. For bond flows, we identify two waves of surges between 2004 and 2013. Similar to equity flows, the first wave ended with the Global Financial Crisis in 2008, and the second one started in the recovery period afterwards, especially in 2009 and 2010. For bond flows there are more surges in the recovery period than for equity flows.

Third, there is considerable variation across country groups and regions, as shown by Figures 5 and 6. For equity flows, emerging countries experienced more surges than advanced countries in the first wave; notably countries in the Middle East and Africa (MEA), Latin America, Emerging Asia, and Eastern Europe had many surges. However, in the second wave surges also occurred in advanced countries, notably in Western Europe, followed by developed Asia. In the recovery period after the global financial crisis, equity flows mainly went to emerging countries notably in the Middle East and Africa, Latin America, and Emerging Asia, which may be due to the better economic perspectives in emerging economies at the time. Different from equity flows, especially emerging countries experienced bond flow surges during the 2004-2007 period, while bond flows went especially into advanced countries after the crisis. More surges occurred during the 2009-2013 wave than during the 2004-2008 wave, notably in Western Europe, Middle East and Africa, Latin America, and Emerging Asia.

[Insert Figures 5 and 6]

4. Model and method

4.1 Models

In line with Ghosh et al. (2014) and Calderón and Kubota (2014), we estimate the following probit model for the likelihood of surges:

$$\Pr(S_{i,t=1}) = F(B_G' X_t^{Global} + B_C' X_{i,t}^{\text{Contagion}} + B_D' X_{i,t-1}^{Domestic}), \quad (2)$$

where $S_{i,t}$ is a dummy variable which takes value 1 when a surge occurs in country *j* at time *t*. X_t^{Global}, $X_{i,t}^{\text{Contagion}}$ *and* $X_{i,t-1}^{Domestic}$ are vectors of global, contagion and domestic factors, respectively (see section 2). To mitigate potential endogeneity, lagged values of domestic factors are employed; the global and contagion factors are considered to be exogenous (cf. Ghosh et al., 2014). B_G, B_C, B_D are the estimated coefficients. $F(\cdot)$ is the cumulative distribution function of the standard normal distribution. We first estimated the model with random effects, but the likelihood-ratio test shows that the panel estimator is no different from the pooled estimator. Therefore, we estimate the equation using pooled probit.

To explore the determinants of the magnitude of surges, we estimate a pooled OLS model over the sample of surge months (cf. Ghosh et al., 2014). The estimated equation is as follows:

$$K_{i,t/S_{i,t=1}} = B_G' X_t^{Global} + B_C' X_{i,t}^{\text{Contagion}} + B_D' X_{i,t-1}^{Domestic} + \varepsilon_{i,t}, \quad (3)$$

where $K_{i,t/S_{i,t=1}}$ is fund flows scaled by assets under management for country *j* at time *t*, conditional on the surge episode defined by the GQK method. X_t^{Global}, $X_{i,t}^{\text{Contagion}}$ *and* $X_{i,t-1}^{Domestic}$ are vectors of global factors, contagion variable and domestic factors, respectively, while $\varepsilon_{i,t}$ is the error term.

4.2 Definition of variables

4.2.1 Global variables

The global variables in our model capture economic, financial and policy uncertainty factors. We use the macro economic data for the US as proxy for global variables. They include the annual growth rate of US industrial production (Fratzscher, 2012) and the US real interest rate (3-month US Treasury bill rate deflated by US inflation; see also Ghosh et al., 2014 and Gauvin et al., 2014). Financial

variables include equity market performance (Fratzscher, 2012), global liquidity (Fratzscher, 2012; Gauvin et al., 2014) and global risk (Fratzscher, 2012; Gauvin et al., 2014). The monthly return of US equity markets is used as proxy for global equity market performance; following Fratzscher (2012), the TED spread[6] is our proxy for global liquidity. The CBOE Volatility Index (VIX), which is constructed using the implied volatilities of a wide range of S&P 500 index options, captures overall financial risks and investor risk aversion (Forbes and Warnock, 2012). As global funds may also invest in commodities, we include commodity prices in our model. Similar to Ghosh et al. (2014), we calculate the log difference between the actual commodity prices (Goldman Sachs Commodity Index) and their trend[7] to capture shocks in commodity prices. In addition, we consider the influence of macroeconomic policy uncertainty in the US and the EU (cf. Gauvin et al., 2014). The policy uncertainty index is drawn from Baker et al. (2013). It is based on the newspaper coverage of policy-related economic uncertainty and disagreement among economic forecasters about policy relevant variables.

4.2.2 Domestic variables

Our domestic variables are divided into two groups: economic fundamentals (industrial production, interest rates and inflation, equity returns, exchange rate depreciation, trade openness (measured as the sum of exports and imports scaled by GDP), credit growth and stock market capitalization), and policy variables (financial openness and the exchange rate regime).

We also take economic variables related to financial markets into consideration. First, we include domestic equity returns (Fratzscher, 2012; Gauvin et al., 2014) as a proxy for the performance of equity markets. In addition, we include the expected real exchange rate depreciation among the financial fundamentals (Ghosh et al., 2014; Calderón and Kubota, 2014), which is calculated by subtracting each country's REER from its long-term trend by applying an HP filter (lambda set at 14,400). Domestic credit growth is included to capture credit conditions. Finally, we include stock market capitalization as a percentage of GDP as proxy of financial development (Ghosh et al., 2014).

The policy variables considered are financial openness and the exchange rate regime. We include

[6] The TED spread is the difference between the interest rates on interbank loans (LIBOR) and the rate on short-term U.S. government debt (T-bills).

[7] The trend is derived using a Hodrick-Prescott filter with lambda set at 14,400.

the financial openness measure (KAOPEN) of Chinn and Ito (2008) to capture financial openness. The exchange rate regime is proxied by the classification of exchange rate regimes as developed by Reinhart and Rogoff (2004) and updated by Ilzetzki et al. (2008). The exchange rate regimes are coded on a 6-point scale where a higher value indicates a more flexible exchange rate.

4.2.3 Contagion variables

Two measures are used to capture contagion effects, namely geography and trade linkages (cf. Forbes and Warnock, 2012). To capture geographic contagion effects, a dummy variable is included which equals one if at least 50% of the countries in the same region are experiencing a surge at the same time.[8] To check the robustness of our results, we also construct a dummy variable. This dummy equals one if at least one country in the same region is experiencing surges. Contagion effects trough trade—henceforth trade linkage—is calculated as export-weighted average of rest-of-the-world surge episodes: $TL_{x,t} = \sum_{i=1}^{n}(\frac{export_{x,i,t}}{GDP_{x,t}} * S\text{urge}_{i,t})$, where $export_{x,i,t}$ is exports from country *x* to country *i* in month *t* (scaled by GDP), $S\text{urge}_{i,t}$ takes the value one if country *i* has a surge in month *t*. $TL_{x,t}$ is calculated for each country *x* in each month *t*. If a country's trade partners experience a surge, the likelihood of this country experiencing a surge tends to increase.

All variables are winsorized at 99%. Appendix 2 presents the definition, sources and references for all variables. Appendix 3 provides summary statistics, a correlation matrix, and a VIF analysis, which does not suggest multicollinearity problems so that the explanatory variables can be included in one model.

5. Occurrence of surges

5.1 Baseline model

Table 3 reports probit estimates of equation (2) using the GQK method to identify surges. Columns (1) to (4) present the estimation results for the determinants of equity flow surges and columns (5) to (8) show the results for the determinants of bond flow surges. We start with global variables and then add the vectors for contagion, domestic economic and domestic policy variables one by one in the model.[9]

[8] We exclude the country itself when calculating the share of the countries experiencing a surge in a region.

[9] We perform a robustness check for the order in which variables are included in the model. The

Table 4 shows the marginal effects of all the explanatory variables evaluated at their mean values based on the results reported in Columns (4) and (8) of Table 3.

Our estimates suggest the following. First, the occurrence of equity and bond flow surges is strongly related to global factors, which is consistent with the findings of previous studies for net capital flows (Forbes and Warnock, 2012; Ghosh et al., 2014).

As to the global factors: the probability of an equity flow surge is positively related with US industrial production and US equity returns, which suggests that better global economic conditions lead to more international fund flows. As shown in panel A of Table 4, a 1% rise in US industrial production is associated with a 0.8% higher likelihood of an equity flow surge. Likewise, a 1% rise in US equity returns is associated with a 1% higher likelihood of an equity flow surge. However, the impact of the US real interest rate on the probability of a surge of equity flows may be somewhat imprecisely estimated. A 1% increase of the TED spread reduces the likelihood of an equity flow surge by 11.8%. In the full model, a higher level of the VIX is not associated with a higher probability of an equity flow surge. Ghosh et al. (2014) argue that higher uncertainty is likely to be associated with fewer surges since most countries receiving capital inflows are traditionally not considered to be safe heavens in times of increased risks, but our result do not support this view for equity fund flows. Greater policy uncertainty in the US leads to a lower probability of surges, suggesting that institutional investors tend to decrease their investments in case of high policy uncertainty in US. This result is consistent with the findings of Gauvin et al. (2014), who find that increases of US policy uncertainty tend to reduce the fund portfolio investments into EMEs significantly. Also Calderón and Kubota (2014) find that the probability of surges of net capital inflows tends to decrease with higher policy uncertainty. Finally, commodity prices have no impact on the surges of equity flows.

The behavior of bond flows is quite similar to that of equity flows with a few exceptions (see Table 4, panel B). A 1% increase of the TED spread increases the likelihood of a bond flow surge by 8.3%. As liquidity conditions worsen and higher counterparty risks increase, investors tend to invest more in bond funds to diversify their risks. Further, a higher VIX is related to an increased probability of a surge in bond flows. This is in contrast to the view of Ghosh et al. (2014), but may reflect that our sample includes both advanced countries and EMEs. The likelihood of bond flow surges is

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qualitative findings are similar; see Appendix 4 for more details.

significantly negatively correlated with commodity prices. One possible reason is that decreasing commodity prices are associated with a worsening investment environment for global funds. Therefore, institutional investors tend to invest more in bonds, which are safer assets than commodities and equity.

Most importantly, although most global factors are significant, their explanatory power is limited. The pseudo R-squared is 7.44% and the fraction of equity flow surges correctly predicted is only 6.28% (see column (1) in Table 3). For bond flow surges a similar picture emerges (see column (5) in Table 3). These results support our first hypothesis that global factors can only explain a small part of the surges in fund flows.

Secondly, only a few domestic variables have a significant impact on the occurrence of flow surges. This result differs from the findings reported by Ghosh et al. (2014), who find that domestic economic fundamentals play an important role in determining net capital flows surges.

For equity flows, we find that a 1% increase of domestic equity returns will increase the probability of a surge by 0.8%, while a one unit increase of trade openness tends to decrease the likelihood of a surge by 11.3%. Likewise, a higher degree of financial openness reduces the probability of equity fund flow surges.

For bond flows, we find similar results as for equity flows except that the exchange rate regime is (weakly) significantly negatively associated with the likelihood of surges, which indicates that a more flexible exchange rate regime tends to reduce the likelihood of surges, while the coefficient on trade openness is not significant.

The pseudo R-squared rises from 43.4% and 55.5% for equity flows (Column (4) of Table 3) to 48.7% and 63.4% for bond flows (Column (8) of Table 3) after adding domestic factors. This result indicates that although only a few domestic pull factors are significant, they increase the explanatory power compared to a model with only push and contagion factors. Our findings therefore provide support for our second hypothesis.

Thirdly, the contagion effects are highly significant, both for surges in equity and bond flows. The pseudo R-squared rises to 43.4% and 55.5% after adding the contagion factors (columns (2) and (6) in Table 3), respectively. The coefficients on the geographic and the trade linkage contagion variables are positively related to the likelihood of a surge. If at least half of the countries within the same geographical area are experiencing a surge, the probability that an equity (bond) flow surge will

occur in another country in that region will increase by 60.1 (77.1)%. Likewise, a country is 73.6 (22.4)% more likely to experience an equity (bond) flow surge if its trading partners are experiencing a surge. This result provides support for our third hypothesis that contagion factors are important in explaining fund flow surges.

More than 92% of the in-sample surges are correctly predicted by our model for both equity and bond flow surges, whereas Ghosh et al. (2014) find that almost 80% of the surges in net capital flows in their sample are correctly predicted. Section 5.5 examines out-of-sample predictions.

[Insert Tables 3 and 4]

5.2 Results for the post-crisis period

Following the findings of Fratzscher (2012) that since the crisis domestic pull factors have become more important in driving fund flow surges, we examine to what extent the results change if we focus on the post-crisis period. The results are in Table 5. All models are estimated with data for 2009.01 to 2013.06.

Fratzscher (2012) reports that global factors appear to have become less important as drivers of global capital flows after the global financial crisis, whereas domestic pull factors have become more important in the recovery period, in particular for countries in Emerging Asia and Latin America. Our results for equity flows provide some support for this argument (Table 5). The coefficient on US industrial production is insignificant in column (4) of Table 5, while some domestic (pull) variables have become more important in the post-crisis period. Specifically, higher domestic interest rate tend to attract more fund investments and significantly increase the occurrence probability of surges. Expected REER appreciation (lower value of expected REER depreciation) also induces fund inflows. For bond flow surges, the results change less compared with the full-sample result, although again the coefficient on US industrial coefficient becomes insignificant in column (8) of Table 5. Our results therefore only partly validate our fourth hypothesis.

[Insert Table 5]

5.3 Advanced versus emerging market economies

Ghosh et al. (2014) argue that capital flow dynamics for advanced economies and emerging market economies may be quite different (EMEs, for instance, typically borrow in foreign currency). We therefore also run separate models for advanced countries and EMEs. Table 6 shows the estimation results (panel A for equity flows and panel B for bond flows).

As to global factors, US industrial production and the TED spread play an important role in equity surges in advanced countries and EMEs, while in the full model the US real interest rate is only significant for the EMEs sample (column (8)). Likewise, policy uncertainty, the VIX, and US equity prices are only significant in the EMEs sample. As to domestic factors, the expected REER depreciation has a different effect in both samples. The probability of an equity flow surge is positively associated with the expected REER depreciation in advanced countries, while this relationship is negative for emerging countries. This is because, on the one hand, for emerging countries, expected REER appreciation (lower value in expected REER depreciation) will attract more international fund investments and therefore lead to a higher likelihood of surges. On the other hand, expected REER depreciation of the currency in advanced countries is usually associated with negative economic shocks, and global funds (which are mainly domiciled in advanced countries) tend to withdraw money from developing countries to decrease risks ('flight-to-safety'). Further, domestic production has a different impact in both samples. Likewise, a flexible exchange rate system reduces the probability of an equity surge in emerging countries but this variable is not significant for advanced countries.

For bond flows, there are also differences between advanced and emerging countries. E.g., policy uncertainty in the US has a significantly negative impact on the probability of a surge in emerging countries, whereas it has little influence on bond investments in advanced countries. The coefficients on US equity returns (positive), the TED spread (positive), VIX (positive), commodity prices (negative), and financial openness (negative) are significant in the model for advanced countries as shown in column (4) of panel B of Table 6, but not in the model for EMEs (column (8)). In fact, contagion seems to be the most important driver of surges in bond flows in emerging countries.

[Insert Table 6]

5.4 Sensitivity analysis

We perform a range of sensitivity tests to check the robustness of our estimation results. Firstly, as surges are extreme episodes and occur irregularly, the distribution of the cumulative distribution function (cdf), F(.), is asymmetric. Therefore, we estimate equation (2) using the complementary logarithmic framework, which assumes that F(.) is the CDF of the extreme value distribution, where $F(z)=1-\exp^{-\exp(z)}$ (Forbes and Warnock, 2012; Calderón and Kubota, 2014). Secondly, we estimate the baseline model with regional dummies to include region-specific effects. Thirdly, we estimate the model with alternative surge definitions: the alternative dependent variable is a binary variable, which equals one if a surge is identified under the RR method. Finally, we employ alternative specifications of some explanatory variables. We use another contagion variable. This variable equals one if only one country in the same area is experiencing a surge. In addition, macroeconomic policy uncertainty in the EU instead of the US is used to test for the influence of policy uncertainty in different areas.

All the sensitivity tests suggest that our results are quite robust, as shown in Tables 7 and 8. Specifically, as to the estimation framework, the outcomes using the logarithmic framework estimation (as shown in Table 7) are very similar to those reported in Table 3. Adding regional dummies to control for regional-fixed effects does not affect the main results, as shown in column (1) in Table 8. When we use the RR method to identify surge episodes, the outcome is very similar to those based on the GQK method, but some factors become significant (e.g. capitalization as percentage of GDP, and the exchange rate regime) as shown in column (2) in Table 8.

The alternative specifications of some of the variables do not lead to very different results. If the contagion variable equals one if only one country in the same region is experiencing a surge, the contagion effect is still significant, although the coefficient is a little bit lower (column (3) in Table 8). The policy uncertainty of the EU is insignificant for the probability of surges, while the influence of policy uncertainty of the US is negative, which indicates that international fund flows are more sensitive to the US policy uncertainty (column (4) in Table 8).

[Insert Tables 7 and 8]

5.5 Out-of-sample prediction analysis

To further examine the predictive ability of our explanatory variables, we make an out-of-sample

prediction analysis. We use the data from January 1996 to June 2012 to estimate the probit model and employ the data from July 2012 to June 2013 to test prediction accuracy. In the out-of-sample prediction, one month is identified as a surge if the predicted probability is higher than 0.5. We have 636 test samples altogether and the results are shown in Table 9.

For equity flows, we identified 78 out of 117 surge episodes and 496 out of 519 non-surge episodes from July 2012 to June 2013. The accuracy is 66.67% and 95.57%, respectively. For bond flows, 97 out of 132 surge episodes as well as 473 out of 504 non-surge episodes are correctly identified. The accuracy is 73.48% and 93.85%, respectively. The percentage of correctly classified episodes is 90.25% for equity flows and 89.62% for bond flows. This accuracy is quite high, indicating that the explanatory variables in our model have significant predictive power for surges.

[Insert Table 9]

6. Magnitude of surges

6.1 Basic model

The dependent variable is the fund flows scaled by assets under management during surge episodes defined by the GQK method. Following Ghosh et al. (2014), the model is estimated using OLS. The results as shown in Table 10 suggest that domestic pull variables play a larger role in determining the magnitude of surges than in determining the probability of the occurrence of a surge, especially for equity flows. This result is consistent with the findings of Ghosh et al. (2014) that are based on net capital flows for 56 emerging market economies over 1980-2011.

As to domestic fundamentals, we find that domestic industrial production, inflation, equity returns, and the expected REER depreciation are all significant in the model for the magnitude of equity surges (see column (4) of Table 10). A lower value of the expected REER depreciation will increases the magnitude of surges of international fund flows because it can enhance the profitability of international investments. For bond flows the results are very similar, although domestic inflation and the expected REER depreciation are not significant, while credit growth and trade openness become significant (see column (8) of Table 10).

Domestic policy factors also turn out to be significant. A flexible exchange rate regime and more financial openness reduce the magnitude of equity flows during surges. This result is different from

the findings of Ghosh et al. (2014) who find that the flexibility of the exchange rate regime and capital account openness tend to amplify the magnitude of surges of net capital inflows. Also in the model for the magnitude of bond flows, these variables are significant although the sign of the exchange rate regime becomes positive.

Only a few global factors have a significant impact on the magnitude of equity surges (column (4) in Table 10). The coefficient on real US interest rate is negatively significant, while US production and the VIX are (weakly) significant with a positive coefficient. In the model for the magnitude of bond flows (column (8) in Table 10) also the coefficients on US production and equity returns are significantly positive.

Our results also suggest that contagion effects trough geography and trade do not drive the magnitude of a surge in equity fund flows. However, in the model for the magnitude of bond flow surges, both contagion variables are significant.

The empirical results discussed above provide support for our fifth hypothesis.

[Insert Table 10]

6.2 Advanced versus emerging market economies

The results for advanced and emerging countries regarding the magnitude of equity surges are quite similar as shown in Table 11 (Panel A). The most important differences are as follows. Firstly, the contagion effects are more significant for advanced countries. Secondly, the exchange rate regime variable has a significant positive coefficient in the case of advanced countries, but a significantly negative one for emerging countries. This indicates that for emerging economies a more flexible exchange rate regime tends to reduce the magnitude of surge episodes.

As shown in Table 11 (Panel B), the results for the magnitude of bond flow surges are also quite similar for advanced countries and EMEs. The magnitude of bond flow surges turns out to be more sensitive to global factors than the magnitude of equity flow surges, especially for emerging countries. For the latter group the coefficients on US industrial production, the US real interest rate, US equity performance and the VIX are all significant (column (8)).

[Insert Table 11]

6.3 Sensitivity analysis

We also do some robustness tests for the determinants of the magnitude of surges, mainly focusing on some alternative specifications of global, contagion and domestic factors (see right-hand side panel in Table 8). First, we include region dummies to control for regional-fixed effects. The results remain stable and domestic factors are more important than global factors in determining surge magnitude (column (5) of Table 8). Next, when the geography dummy equals one if at least one country in the same region is experiencing a surge, the geographic contagion effect is still insignificant for the magnitude of surges (column (6)). Finally, similar to the US policy uncertainty, EU policy uncertainty has a positive effect on surge magnitude (column (7)).

7. Conclusions

Based on the monthly data of 55 countries, this study investigates surges in international fund flows. Employing the threshold method proposed by Ghosh et al. (2014), we identify surge episodes for equity flows and bond flows. In particular, we can identify three surge episodes for equity flows during 1996 to 2013 and two surges in bond flows from 2004 to 2013.

Following Ghosh et al. (2014), we investigate the drivers of the occurrence and magnitude of these surges. Our results suggest that surges of international fund flows are especially driven by global push factors, contagion factors and domestic policy. However, for our full sample, the magnitude of surges primarily seems to depend on domestic factors. After the global financial crisis, it appears that domestic (pull) variables play a more important role in determining the equity flow surges. Besides, our explanatory variables have strong out-of-sample predictive power. The out-of-sample prediction accuracy is 90.25% for equity flows and 89.62% for bond flows.

Overall, our findings are consistent with, but go beyond, the empirical results of previous studies. We provide a better understanding of surges of international funds flows, which have not been studied before in the international capital mobility literature. From a policy perspective, our results are also important. Although domestic factors play a limited role in driving surges, a country could reduce the probability of a surge by enhancing exchange rate flexibility and financial openness. Even though global factors are key in driving the occurrence of a surge, policy makers could influence the magnitude of surges, e.g. by enhancing financial openness.

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[Online material]

Appendix 1. Countries included by region

Developed Asia	**Eastern Europe**	**Emerging Asia**	**Latin America**	**Middle East and Africa**	**Western Europe**	**North America**
Australia*	Hungary	China	Argentina	Egypt	Austria*	Canada*
Hong Kong*	Czech Republic*	India	Brazil	Israel*	Belgium*	United States*
Japan*	Poland*	Indonesia	Chile*	Kazakhstan	Denmark*	
Korea*	Romania	Malaysia	Colombia	Morocco	Finland*	
New Zealand*	Russia*	Philippines	Mexico	Nigeria	France*	
Singapore*	Ukraine	Sri Lanka	Panama	Pakistan	Germany*	
Taiwan*		Thailand	Peru	Qatar*	Greece*	
				Saudi Arabia*	Ireland*	
				South Africa	Italy*	
				Turkey	Netherlands*	
					Norway*	
					Portugal*	
					Spain*	
					Sweden*	
					Switzerland*	
					United Kingdom*	

Note: * indicates that a country is classified as advanced country; the other countries are classified as emerging country.

Appendix 2. Definition of variables

Variable	Definition/ Calculation	Reference	Frequency & Data source
Global variables			
US industrial production	Annual percentage change, %.	Fratzscher (2012)	Monthly, CEIC, Datastream
US real interest rate	3-month US Treasury bill rate deflated by US inflation, %.	Ghosh et al. (2014); Gauvin et al. (2014)	Monthly, CEIC
US equity returns	Monthly % returns.	Fratzscher (2012)	Monthly, CEIC
TED spread (Δ)	Calculated as the difference between the three-month LIBOR and the three-month T-bill interest rate. Change in monthly average.	Fratzscher (2012); Gauvin et al. (2014)	Monthly, CEIC
VIX (Δ)	The CBOE Volatility Index (VIX), constructed using the implied volatilities of a wide range of S&P 500 index options. Change in monthly average.	Fratzscher (2012); Gauvin et al. (2014)	Monthly, Thomson Reuters
Commodity prices	Measured as the log difference between the actual and trend commodity price index[10] to capture the effect of large movements in commodity prices.	Ghosh et al. (2014)	Monthly, Datastream
Macroeconomic policy uncertainty in the US and EU (Δ)	Weighted index value of news related to economic uncertainty, expiring tax code provisions (US index only), and forecast dispersion components. Change in monthly average.	Gauvin et al. (2014); Caldéron and Kubota (2014)	Monthly, Baker et al. (2015)
Domestic economic variables			
Industrial production	Annual percentage change, %.	Fratzscher (2012)	Monthly, CEIC
Interest rates	Money market or treasury bill rate, %.	Gauvin et al. (2014)	Monthly, CEIC
Inflation rate	Based on CPI, %.	Fratzscher (2012)	Monthly, CEIC
Equity returns	Monthly % returns.	Fratzscher (2012); Gauvin et al. (2014)	Monthly, CEIC
Expected REER depreciation	Constructed by subtracting each country's real exchange rate series (REER) from corresponding HP trend. Lower value of expected REER depreciation indicates greater currency appreciation prospects.	Ghosh et al. (2014); Caldéron and Kubota (2014)	Monthly, CEIC
Trade openness	Sum of import and export over GDP.	Faria et al. (2007); Puy (2016); Caldéron and Kubota (2014)	Monthly, CEIC
Credit growth	Annual percentage change, %.		Monthly, CEIC
Stock market capitalization	Stock market capitalization as percentage of GDP.		Annual, Datastream
Domestic policy variables			
Exchange rate regime	Classification of exchange rate regimes (de facto) developed by Reinhart and Rogoff (2004) and updated by Ilzetzki et al. (2008)	Caldéron and Kubota (2014)	Monthly

[10] Goldman Sachs Commodity Index (GSCI): A composite index of commodity sector returns which represents a broadly diversified, unleveraged, long-only position in commodity futures.

Financial openness index (KAOPEN)	KAOPEN measure (de jure index) developed by Chinn and Ito (2008). Takes a higher value if the country is more financially integrated (lower capital controls). KAOPEN is based on the principal components from four binary variables reported by the IMF: (1) capital account openness; (2) current account openness; (3) the stringency of requirements for the repatriation and/or surrender of export proceeds; and (4) the existence of multiple exchange rates for capital account transactions.	Forbes and Warnock (2012); Lambert et al. (2011)	Annual, Chinn and Ito (2008)
Contagion variables			
Geographic proximity	A dummy variable equal to one if at least 50% of the countries in the same region are experiencing surge	Forbes and Warnock (2012)	Monthly, own calculations
Trade linkage	$TL_{x,t} = \sum_{i=1}^{n} (\frac{export_{x,i,t}}{GDP_{x,t}} * S\text{urge}_{i,t})$ Where $export_{x,i,t}$ is exports from country x to country i in quarter t (scaled by GDP), $S\text{urge}_{i,t}$=1 if country I had an surge in the quarter t. $TL_{x,t}$ is calculated for each country x in each quarter t.	Forbes and Warnock (2012)	IMF's Direction of Trade Statistics

Appendix 3. Data analysis

Appendix 3.1 Summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Dependent variables					
Equity Surge_GQK	9444	0.267	0.442	0.000	1.000
Equity Surge_RR	9444	0.201	0.401	0.000	1.000
Equity flows (scaled by AUM)	9444	0.270	1.706	-27.880	46.880
Bond Surge_GQK	5390	0.257	0.437	0.000	1.000
Bond Surge_RR	5390	0.201	0.400	0.000	1.000
Bond flows (scaled by AUM)	5390	0.924	2.192	-17.283	10.516
Global variables					
US industrial production	11130	1.917	4.588	-14.410	8.544
US real interest rate	11130	0.245	2.037	-4.053	3.740
US equity returns	11077	0.594	4.318	-11.140	9.291
TED spread (Δ)	11077	-0.004	0.273	-1.240	1.559
VIX (Δ)	11077	0.021	4.286	-13.000	19.480
Policy uncertainty (Δ)	11077	0.116	18.639	-42.880	103.770
Commodity prices (de-trend)	11130	0.000	30.865	-98.669	130.672
Domestic variables					
Dom. industrial production	8340	2.725	7.334	-32.430	51.164
Dom. interest rate	8931	6.414	8.566	-0.188	146.070
Dom. inflation	8864	4.480	6.966	-5.985	120.680
Dom. equity returns	9752	0.934	7.582	-100.000	54.150
Exp. REER depreciation	10270	0.001	4.493	-40.841	38.019
Trade openness	9456	0.703	0.573	0.110	3.992
Credit growth	8337	13.132	30.143	-87.740	1120.500
Stock market capitalization	10704	69.290	68.888	0.160	606.000
Exchange rate regime	9539	2.194	1.106	1.000	6.000
KAOPEN	10176	1.088	1.505	-1.864	2.439
Contagion variables					
Geography contagion	11077	0.227	0.419	0.000	1.000
Trade linkage	10071	0.056	0.127	0.000	1.396

Appendix 3.2 Correlation matrix

		1	2	3	4	5	6	7	8	9
US industrial production	1	1.00								
US real interest rate	2	0.20	1.00							
US equity returns	3	0.08	0.17	1.00						
TED spread (Δ)	4	0.16	-0.04	-0.06	1.00					
VIX (Δ)	5	0.04	-0.02	-0.71	0.10	1.00				
Policy uncertainty (Δ)	6	0.02	-0.04	-0.28	0.23	0.34	1.00			
Commodity prices	7	0.30	-0.29	-0.13	0.23	0.11	0.09	1.00		
Geography contagion	8	0.01	0.02	0.24	-0.08	-0.12	-0.08	-0.07	1.00	
Trade linkage	9	0.00	-0.02	0.17	-0.06	-0.08	-0.06	-0.06	0.44	1.00
Dom. industrial production	10	0.45	0.00	0.00	0.17	0.06	0.04	0.24	0.07	0.09
Dom. interest rate	11	0.08	0.25	0.00	0.01	0.01	0.01	0.02	0.05	-0.13
Dom. inflation	12	0.04	0.07	-0.02	-0.01	0.02	0.01	0.07	0.09	-0.08
Dom. equity returns	13	0.00	0.12	0.49	-0.12	-0.38	-0.20	-0.15	0.24	0.15
Exp. REER depreciation	14	0.04	-0.03	-0.02	0.03	0.02	0.00	0.05	-0.01	-0.02
Trade openness	15	0.01	-0.04	-0.02	0.01	0.01	0.00	0.04	0.00	0.46
Credit growth	16	-0.02	0.00	-0.04	0.03	0.02	0.01	0.10	0.00	-0.04
Stock market capitalization	17	0.00	0.02	0.02	0.00	0.00	0.00	-0.04	0.01	0.31
Exchange rate regime	18	0.03	0.03	0.00	0.00	0.01	0.00	0.01	0.09	-0.07
KAOPEN	19	-0.05	-0.08	-0.01	-0.01	0.00	0.00	0.00	-0.12	0.09

Appendix 3.2 Correlation matrix (continued)

		10	11	12	13	14	15	16	17	18	19
Dom. industrial production	10	0.45									
Dom. interest rate	11	0.08	1.00								
Dom. inflation	12	0.04	0.73	1.00							
Dom. equity returns	13	0.00	0.03	0.04	1.00						
Exp. REER depreciation	14	0.04	-0.03	-0.15	-0.06	1.00					
Trade openness	15	0.01	-0.20	-0.11	-0.03	-0.02	1.00				
Credit growth	16	-0.02	0.38	0.26	0.01	0.03	-0.05	1.00			
Stock market capitalization	17	0.00	-0.24	-0.25	0.02	-0.01	0.58	-0.10	1.00		
Exchange rate regime	18	0.03	0.36	0.23	0.02	-0.01	-0.15	0.08	-0.02	1.00	
KAOPEN	19	-0.05	-0.41	-0.44	-0.06	0.00	0.15	-0.22	0.26	-0.28	1.00

Appendix 3.3 VIF analysis of explanatory variables

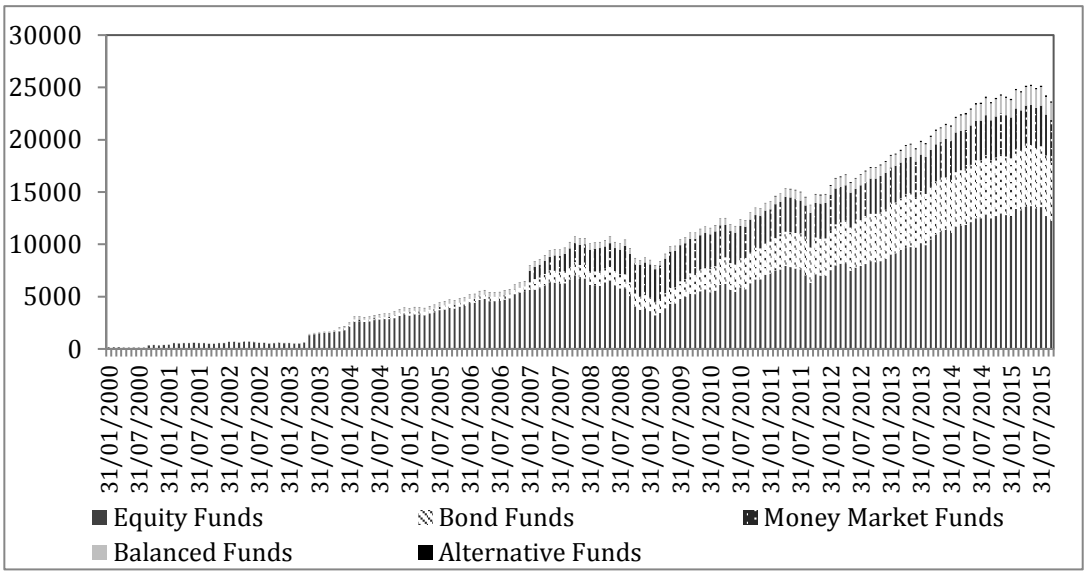
Variable	VIF	1/VIF
US equity returns	2.97	0.336469
VIX	2.72	0.367207
Dom. inflation	2.72	0.367665
US industrial production	2.2	0.454859
Commodity prices	2.17	0.460777
US real interest rate	2.16	0.461984
Dom. industrial production	2.04	0.489576
Geography contagion	2.03	0.492591
Trade linkage	2.01	0.4966
Dom. interest rate	2.01	0.496873
Trade openness	2.01	0.497899
Stock market capitalization	1.79	0.559583
KAOPEN	1.78	0.562566
Credit growth	1.49	0.671167
TED spread	1.35	0.742504
Policy uncertainty	1.24	0.806993
Dom. equity returns	1.22	0.820582
Exchange rate regime	1.13	0.886807
Exp. REER depreciation	1.04	0.962452
Mean VIF	1.9	

Appendix 4. Sensitivity analysis for order of inclusion of variables (equity flows)

	(1)	(2)	(3)	(4)	(5)
US industrial production	0.024***	0.017***			0.027***
	(6.84)	(3.97)			(3.70)
US real interest rate	0.036***	0.046***			-0.030
	(4.48)	(4.31)			(-1.34)
US equity returns	0.111***	0.041***			0.036**
	(20.68)	(5.78)			(3.22)
TED spread	-0.344***	-0.089			-0.420***
	(-5.73)	(-1.17)			(-3.47)
VIX	0.045***	0.020**			0.017
	(8.44)	(2.88)			(1.38)
Policy uncertainty	-0.003***	-0.003**			-0.004*
	(-3.93)	(-2.69)			(-2.24)
Commodity prices	-0.001	0.000			-0.001
	(-1.46)	(0.56)			(-1.45)
Geography contagion		2.017***		1.912***	1.851***
		(47.44)		(28.35)	(26.89)
Trade linkage		1.426***		2.818***	2.627***
		(8.84)		(8.82)	(8.19)
Dom. industrial production			0.010***	0.009*	0.003
			(3.45)	(2.42)	(0.60)
Dom. interest rate			0.011	0.006	0.014
			(1.29)	(0.57)	(1.26)
Dom. inflation			-0.022*	-0.002	-0.006
			(-2.13)	(-0.19)	(-0.48)
Dom. equity returns			0.046***	0.027***	0.029***
			(12.82)	(5.93)	(6.07)
Exp. REER depreciation			0.003	-0.007	-0.007
			(0.50)	(-0.83)	(-0.81)
Trade openness			0.030	-0.450***	-0.405***
			(0.63)	(-5.24)	(-4.63)
Credit growth			-0.005*	-0.002	-0.001
			(-2.53)	(-0.71)	(-0.44)
Stock market capitalization			0.000	0.000	0.000
			(0.67)	(0.13)	(0.19)
Exchange rate regime			0.016	-0.044	-0.043
			(0.66)	(-1.39)	(-1.33)
KAOPEN			-0.149***	-0.091***	-0.096***
			(-7.12)	(-3.48)	(-3.52)
Constant	-0.778***	-1.456***	-0.437***	-1.048***	-1.145***
	(-45.84)	(-58.39)	(-4.77)	(-8.64)	(-8.92)
N	9444	8669	4898	4898	3722

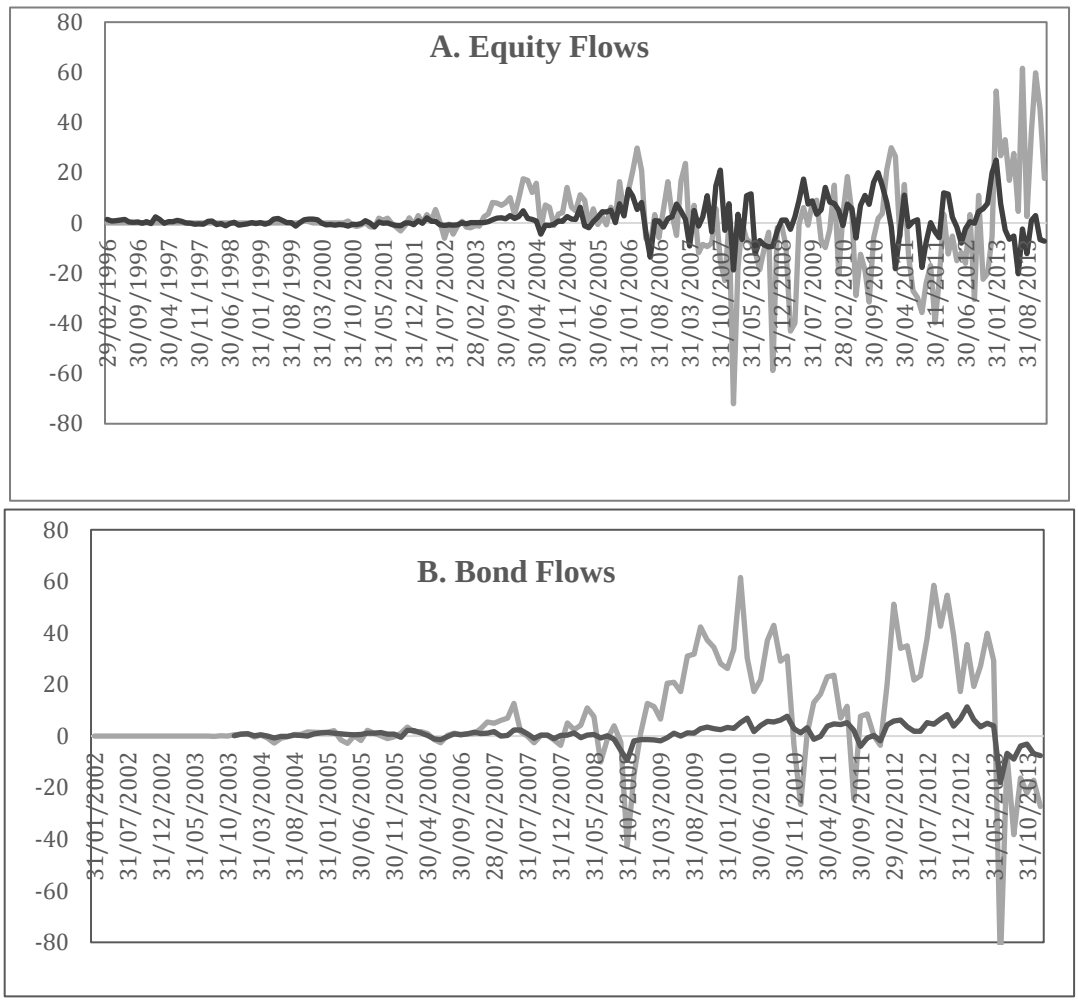
Notes: See notes to Table 3. This table presents results for combinations of the groups of control variables. Column (1) includes global variables only. Column (2) includes global variables and contagion variables. Column (3) includes domestic variables only. Column (4) includes domestic variables and contagion variables. Column (5) includes all variables. This table shows that the order of inclusion of variables does not change their significance.

Figure 1. Total net assets of international fund flows
(USD billion)



Source: EPFR Global

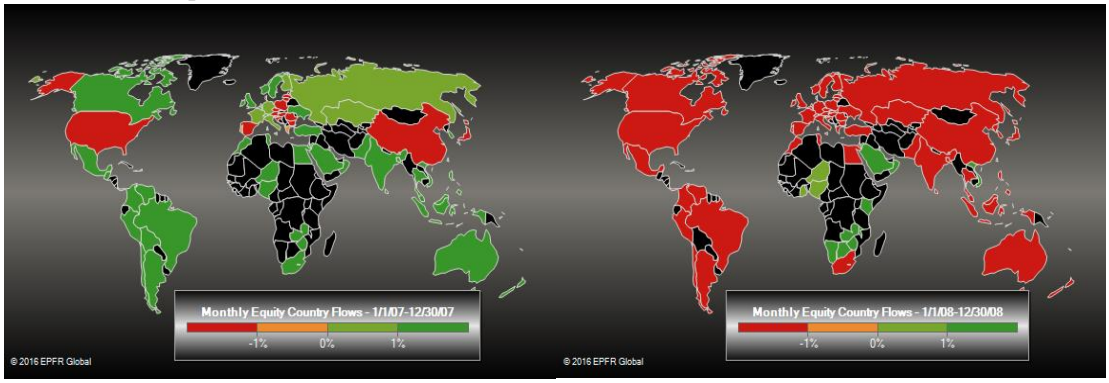
Figure 2. Equity (Panel A) and bond (Panel B) fund flows into developed (light) and emerging (dark) countries (USD billion)



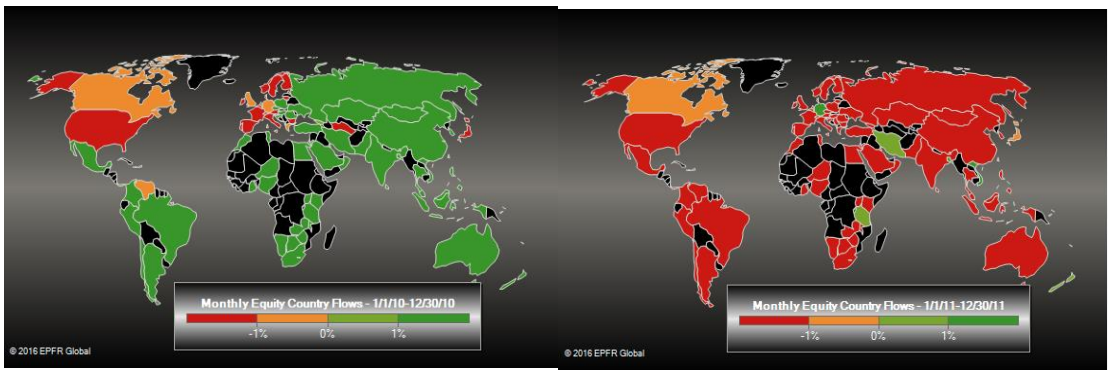
Source: EPFR Global

Figure 3. In- and outflow of funds during the US subprime crisis (Panel A) and the European sovereign debt crisis (Panel B)

Panel A: US subprime crisis (2007-2008)



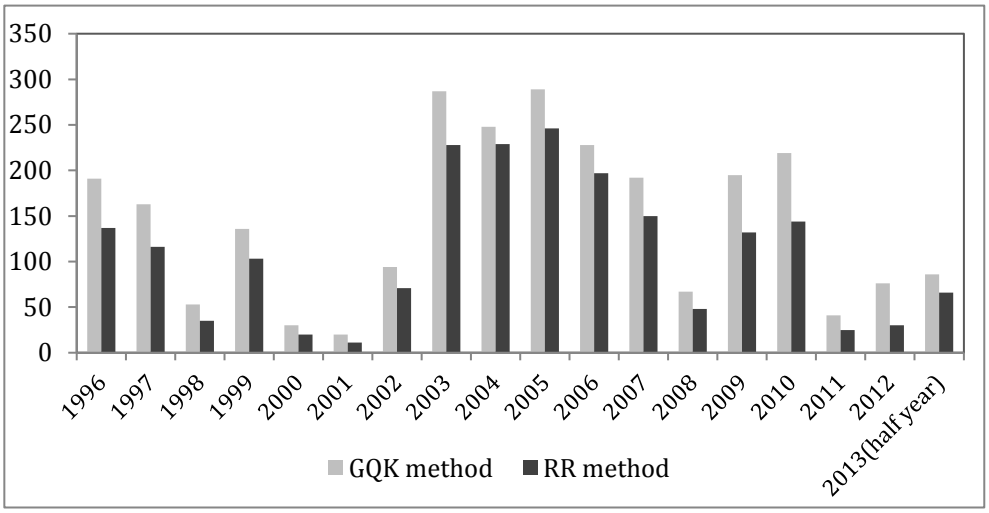
Panel B: European debt crisis (2010-2011)



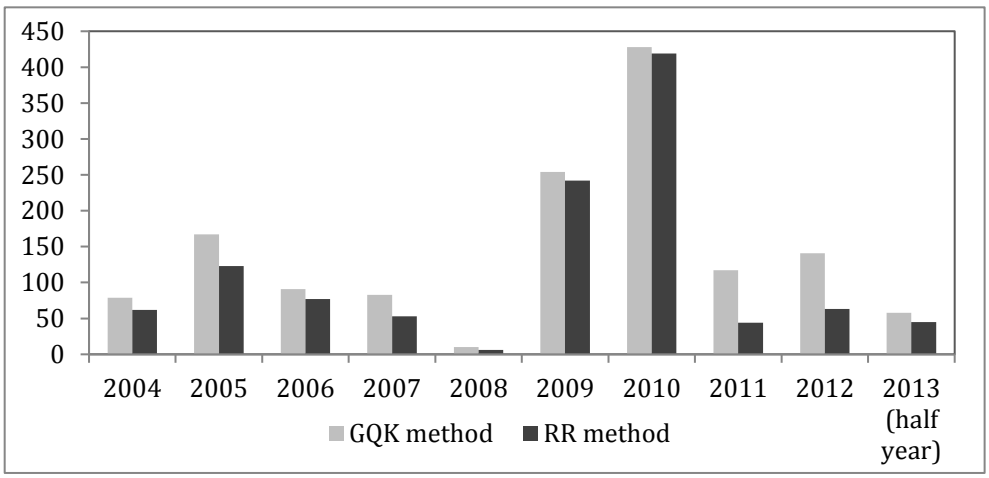
Note: The red and orange color mean fund outflows and the light and dark green color means fund inflows (see legend below the figure). More specifically, the red color indicates that fund outflows scaled by asset under management (AUM) are below -1%. The orange color indicates that this percentage is between -1% and 0%. The light green color indicates that fund inflows scaled by AUM are between 0% and 1%. The dark green color indicates this percentage is above 1%. The black color indicates data are not available.
Source: EPFR Global.

Figure 4. Number of surge episodes (in months per year) of
equity (Panel A) and bond (Panel B) fund flows according to GQK and RR methods

Panel A: Surge episodes of equity flows (1996-2003)



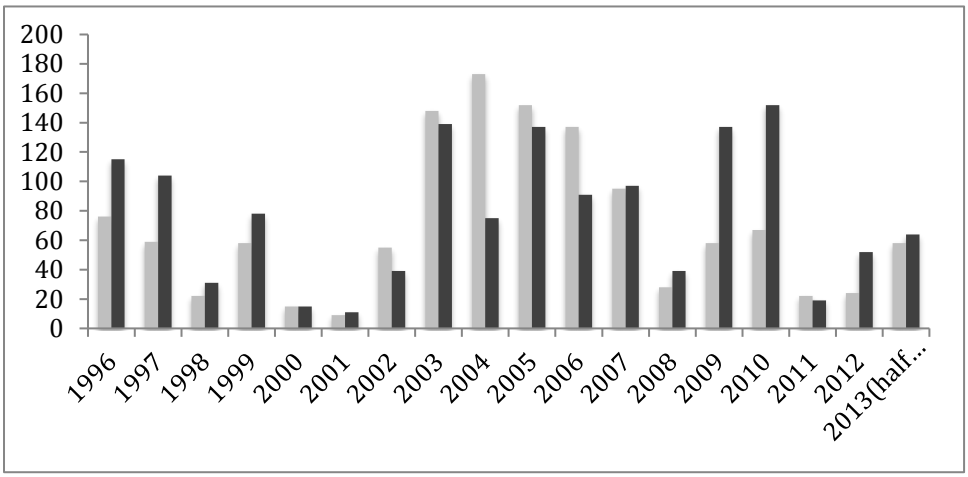
Panel B: Surge episodes of bond flows (2004-2013)



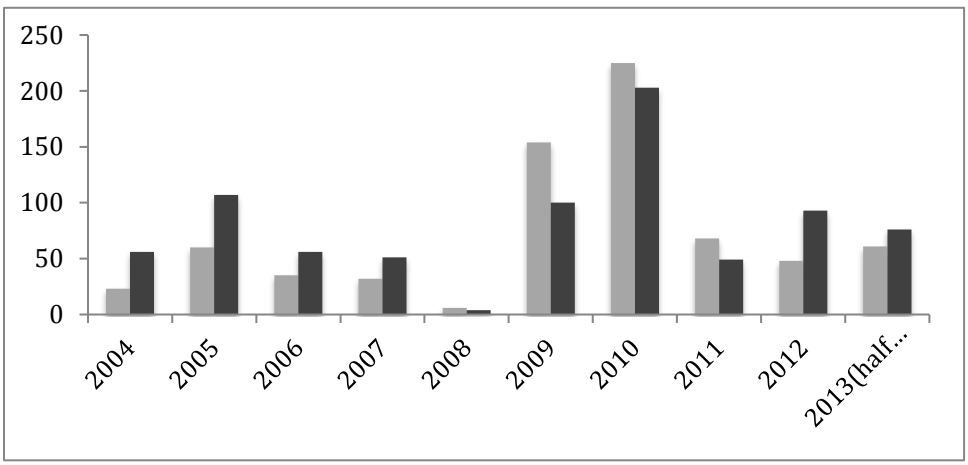
Notes: the GQK method defines a surge if fund flows are both in the top 30th percentile of a country's own distribution of fund flows (as percentage of assets under management) and in the top 30th percentile of the whole sample (Ghosh et al., 2014). The RR method sets the threshold of 20th percentile of fund flows (as percentage of assets under managements) of a country's own distribution (Reinhart and Reinhart, 2009).

Figure 5. Number of surge episodes (in months per year) of equity (Panel A) and bond (Panel B) fund flows for developed (light) and emerging (dark) countries

Panel A: Equity flows (1996-2013)



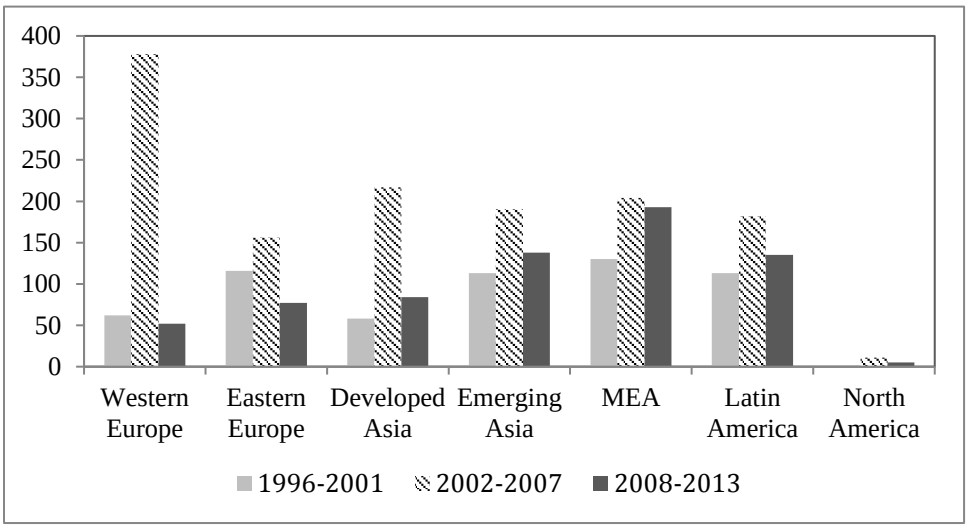
Panel B: Bond flows (2004-2013)



Notes: our sample includes 32 developed countries and 23 emerging countries. See Appendix 1 for a list of all countries.

Figure 6. Number of surge episodes (in months) for equity (Panel A) and bond (Panel B) fund flows in different regions and subperiods

Panel A: Equity flows



Panel B: Bond flows

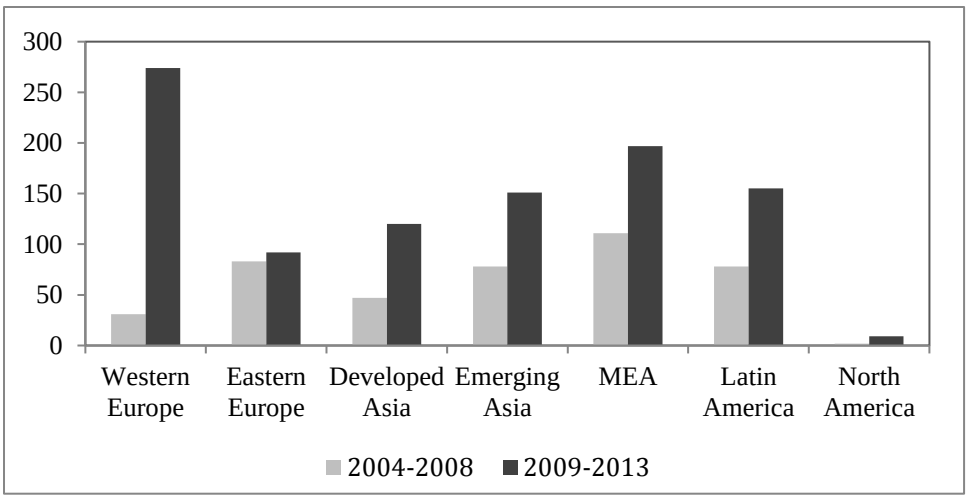


Table 1. Standard deviation of different types of capital flows

	Direct Investment	Portfolio Investment	Other Investment	Equity Flows	Bond flows
US	0.134	0.220	0.168	0.193	0.234
UK	0.139	0.193	0.137	0.218	0.213
Japan	0.137	0.184	0.188	0.201	0.246
Brazil	0.244	0.174	0.187	0.174	0.221
Russia	0.171	0.174	0.182	0.181	0.198

Notes: The standard deviation is calculated based on gross capital inflows. To compare the different types of capital flows, we do min-max normalization on the raw data before calculation, where $x^* = \frac{x-min}{max-min}$. The data for the other types of capital flows comes from the Balance of Payment of each country, collected by CEIC database.

Table 2. Asset allocation of global funds in different regions (August 2016)

	Equity Funds		**Bond Funds**	
	US$ billion	%	US$ billion	%
North America	8848.07	64.67	4480.77	71.02
Developed Europe	2381.38	17.41	1046.82	16.59
Developed Asia	1006.55	7.36	153.80	2.44
Developed Markets Total	**12236.00**	**89.43**	**5681.39**	**90.05**
Emerging Asia	1005.17	7.35	235.14	3.73
Latin America	171.21	1.25	182.02	2.89
Emerging Europe	121.97	0.89	132.51	2.10
Africa	68.14	0.50	27.75	0.44
Middle East	52.75	0.39	18.30	0.29
Emerging Markets Total	**1419.23**	**10.37**	**595.72**	**9.44**
Other	26.77	0.20	31.96	0.51
Total	**13682.01**	**100**	**6309.06**	**100**

Source: EPFR Global. This table only presents the assets allocation of equity funds and bond funds.

Table 3. Occurrence of surges: baseline model

	Equity flows				Bond flows			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
US industrial production	0.024***	0.017***	0.017**	0.027***	0.047***	0.020***	0.018**	0.023**
	(6.84)	(3.97)	(2.56)	(3.7)	(10.73)	(3.37)	(2.4)	(2.56)
US real interest	0.036***	0.046***	0.009	-0.030	-0.182***	-0.009	-0.036	-0.050
	(4.48)	(4.31)	(0.46)	(-1.34)	(-13.58)	(-0.49)	(-1.56)	(-1.61)
US equity returns	0.111***	0.041***	0.043***	0.036***	0.126***	0.056***	0.049***	0.046***
	(20.68)	(5.78)	(4.07)	(3.22)	(15.94)	(5.10)	(3.88)	(3.00)
TED spread	-0.344***	-0.089	-0.420***	-0.420***	0.066	0.172	0.235*	0.322**
	(-5.73)	(-1.17)	(-3.50)	(-3.47)	(0.84)	(1.59)	(1.85)	(2.36)
VIX	0.045***	0.020***	0.020*	0.017	0.091***	0.042***	0.035***	0.034**
	(8.44)	(2.88)	(1.89)	(1.38)	(11.79)	(3.93)	(2.91)	(2.17)
Policy uncertainty	-0.003***	-0.003***	-0.003*	-0.004**	-0.004***	-0.002*	-0.003**	-0.004**
	(-3.93)	(-2.69)	(-1.85)	(-2.24)	(-4.36)	(-1.80)	(-2.07)	(-2.03)
Commodity prices	-0.001	0.001	-0.001	-0.001	-0.012***	-0.003***	-0.003**	-0.004**
	(-1.46)	(0.56)	(-1.13)	(-1.45)	(-15.46)	(-2.82)	(-2.28)	(-2.40)
Geography		2.017***	1.867***	1.851***		2.422***	2.257***	2.572***
		(47.44)	(30.11)	(26.89)		(40.36)	(29.87)	(24.42)
Trade linkage		1.426***	2.487***	2.627***		1.118***	1.485***	0.873***
		(8.84)	(8.62)	(8.19)		(6.35)	(6.01)	(2.94)
Dom. industrial production			0.011**	0.003			0.002	-0.000
			(2.54)	(0.6)			(0.43)	(-0.05)
Dom. interest rate			0.011	0.014			0.009	0.005
			(1.14)	(1.26)			(0.74)	(0.32)
Dom. inflation			0.010	-0.006			0.003	-0.0192
			(0.84)	(-0.48)			(0.24)	(-1.02)
Dom. equity			0.033***	0.029***			0.020***	0.017***
			(7.43)	(6.07)			(3.94)	(2.81)
Exp. REER depreciation			-0.004	-0.007			-0.018*	-0.009
			(-0.47)	(-0.81)			(-1.90)	(-0.73)
Trade openness			-0.415***	-0.405***			-0.201***	-0.105
			(-5.40)	(-4.63)			(-2.79)	(-1.16)
Credit growth			-0.001	-0.001			0.001	-0.002
			(-0.50)	(-0.44)			-0.4	(-0.55)
Stock market capitalization			0.000	0.000			0.001*	0.001
			(0.36)	(0.19)			(1.95)	(0.9)
Exchange rate regime				-0.043				-0.071*
				(-1.33)				(-1.65)
KAOPEN				-0.096***				-0.107***
				(-3.52)				(-2.88)
Constant	-0.778***	-1.456***	-1.470***	-1.145***	-0.996***	-1.706***	-1.744***	-1.359***
	(-45.84)	(-58.39)	(-19.21)	(-8.92)	(-36.57)	(-43.61)	(-20.53)	(-8.09)
N	9444	8669	4898	3722	5390	5329	3931	2755
Pseudo R-squared	0.074	0.434	0.481	0.487	0.105	0.555	0.551	0.634
Sensitivity	6.28	75.99	77.72	79.83	12.76	84.26	84.63	88.09
Specificity	96.95	93.62	93.9	92.83	97.15	94.95	94.28	95.85

Notes: Dom., exp., cap. are short for domestic, expected, and capitalization, respectively. The dependent variable is a binary variable that equals one if a surge occurs according to the GQK method. All equations are estimated using a probit model. *t* statistics in parentheses; *, ** and *** indicate significance at respectively 10%, 5% and 1% level. Sensitivity (specificity) gives the fraction of surges (non-surges) that are correctly predicted. Domestic factors are lagged one period. See Appendix 2 for a detailed description of the variables used.

Table 4. Marginal effects of explanatory variables

Panel A: Equity flows					
Variable:	dy/dx	Std.Err.	P value	95% C.I.[ ]	Mean
US industrial production	0.008	0.002	0.000	[0.004, 0.012]	0.103
US real interest rate	-0.008	0.006	0.179	[-0.021, 0.004]	-0.324
US equity returns	0.010	0.003	0.001	[0.004, 0.016]	0.468
TED spread (Δ)	-0.118	0.034	0.000	[-0.184, -0.052]	-0.016
VIX (Δ)	0.005	0.003	0.169	[-0.002, 0.011]	-0.027
Policy uncertainty (Δ)	-0.001	0.001	0.024	[-0.002, 0.000]	0.482
Commodity prices (de-trend)	0.000	0.000	0.147	[-0.001, 0.000]	-3.938
Geography contagion	0.601	0.021	0.000	[0.559, 0.642]	0.283
Trade linkage	0.736	0.090	0.000	[0.559, 0.913]	0.077
Dom. industrial production	0.001	0.001	0.546	[-0.002, 0.004]	2.257
Dom. interest rate	0.004	0.003	0.209	[-0.002, 0.010]	4.744
Dom. inflation	-0.002	0.004	0.631	[-0.009, 0.006]	3.607
Dom. equity returns	0.008	0.001	0.000	[0.005, 0.006]	0.986
Exp. REER depreciation	-0.002	0.002	0.418	[-0.007, 0.003]	0.002
Trade openness	-0.113	0.024	0.000	[-0.161, -0.066]	0.728
Credit growth	0.000	0.001	0.658	[-0.002, -0.066]	12.483
Stock market capitalization	0.000	0.000	0.850	[0.000, 0.000]	77.424
Exchange rate regime	-0.012	0.009	0.183	[-0.030, 0.006]	2.208
KAOPEN	-0.027	0.008	0.000	[-0.042, 0.006]	1.526
Panel B: Bond flows					
Variable:	dy/dx	Std.Err.	P value	95%C.I. [ ]	Mean
US industrial production	0.006	0.002	0.009	[0.001, 0.010]	-0.299
US real interest rate	-0.013	0.008	0.109	[-0.029, 0.003]	-0.275
US equity returns	0.012	0.004	0.002	[0.004, 0.019]	0.447
TED spread (Δ)	0.083	0.035	0.017	[0.015, 0.150]	-0.020
VIX (Δ)	0.009	0.004	0.029	[0.001, 0.150]	0.045
Policy uncertainty (Δ)	-0.001	0.001	0.041	[-0.002, 0.000]	0.880
Commodity prices (de-trend)	-0.001	0.000	0.015	[-0.002, 0.000]	-3.736
Geography contagion	0.771	0.023	0.000	[0.726, 0.817]	0.279
Trade linkage	0.224	0.077	0.003	[0.074, 0.374]	0.081
Dom. industrial production	0.000	0.002	0.957	[-0.003, 0.003]	2.372
Dom. interest rate	0.001	0.004	0.745	[-0.007, 0.003]	4.750
Dom. inflation	-0.005	0.005	0.308	[-0.014, 0.005]	3.810
Dom. equity returns	0.004	0.002	0.005	[0.001, 0.007]	1.031
Exp. REER depreciation	-0.002	0.003	0.467	[-0.008, 0.007]	-0.132
Trade openness	-0.027	0.023	0.246	[-0.073, 0.019]	0.785
Credit growth	0.000	0.001	0.582	[-0.002, 0.001]	13.341
Stock market capitalization	0.000	0.000	0.366	[0.000, 0.000]	83.177
Exchange rate regime	-0.018	0.011	0.100	[-0.040, 0.000]	2.303
KAOPEN	-0.027	0.010	0.004	[-0.046, -0.009]	1.372

Notes: This table presents the marginal effects of all the explanatory variables at their mean value based on the results reported in Column (4) (Panel A) and Column (8) (Panel B) of Table 3.

Table 5. Occurrence of surges: post-crisis period

	Equity flows				Bond flows			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
US industrial production	0.024***	0.013*	0.011	0.019	0.019***	0.004	0.005	-0.010
	(3.45)	(1.80)	(1.15)	(1.52)	(3.21)	(0.45)	(0.49)	(-0.73)
US real interest rate	0.417***	0.221***	0.153***	0.092	0.047	0.075*	0.067	-0.017
	(11.07)	(5.34)	(3.02)	(1.39)	(1.47)	(1.76)	(1.40)	(-0.24)
US equity returns	0.091***	0.042***	0.079***	0.061***	0.092***	0.050***	0.041***	0.046**
	(7.96)	(3.41)	(4.98)	(3.40)	(8.97)	(3.64)	(2.66)	(2.24)
TED spread	2.833***	1.225***	2.436***	2.356***	2.892***	1.690***	1.310**	2.469**
	(6.86)	(2.79)	(3.87)	(2.82)	(7.48)	(3.17)	(2.04)	(2.23)
VIX	0.038***	0.029**	0.051***	0.042**	0.071***	0.044***	0.034**	0.048**
	(3.33)	(2.38)	(3.36)	(2.24)	(7.29)	(3.38)	(2.34)	(2.18)
Policy uncertainty	-0.008***	-0.006***	-0.004**	-0.004	-0.002	-0.001	-0.001	0.001
	(-6.12)	(-3.65)	(-2.31)	(-1.62)	(-1.61)	(-0.41)	(-0.85)	(0.48)
Commodity prices	0.002*	0.002	-0.001	-0.002	-0.006***	-0.000	0.001	-0.005
	(1.82)	(1.21)	(-0.47)	(-0.82)	(-5.18)	(-0.22)	(0.32)	(-1.24)
Geography contagion		1.698***	1.502***	1.281***		2.236***	1.999***	2.042***
		(22.06)	(15.79)	(10.26)		(31.49)	(23.01)	(13.99)
Trade linkage		0.312	1.287***	1.533***		0.844***	1.793***	2.533***
		(1.16)	(3.03)	(2.68)		(4.29)	(5.79)	(4.36)
Dom. industrial production			0.014***	0.003			0.008	0.014*
			(2.63)	(0.49)			(1.46)	(1.75)
Dom. interest rate			0.044**	0.061***			0.018	0.010
			(2.57)	(2.59)			(1.11)	(0.40)
Dom. inflation			0.015	-0.023			-0.008	-0.023
			(0.77)	(-0.92)			(-0.41)	(-0.80)
Dom. equity returns			0.039***	0.033***			0.015**	0.010
			(5.72)	(3.92)			(2.42)	(1.11)
Exp. REER depreciation			-0.022*	-0.025*			-0.012	0.013
			(-1.86)	(-1.87)			(-1.02)	(0.82)
Trade openness			-0.362***	-0.245			-0.444***	-1.010***
			(-3.19)	(-1.54)			(-4.18)	(-4.35)
Credit growth			0.000	0.010*			0.003	-0.003
			(0.01)	(1.85)			(0.75)	(-0.49)
Stock market capitalization			0.001	-0.000			0.001*	0.000
			(1.39)	(-0.24)			(1.66)	(0.14)
Exchange rate regime				0.098*				-0.089
				(1.68)				(-1.49)
KAOPEN				-0.170***				-0.114**
				(-4.04)				(-2.22)
Constant	-0.288***	-1.009***	-1.362***	-1.365***	-0.376***	-1.362***	-1.251***	-0.510**
	(-4.31)	(-12.26)	(-10.49)	(-6.17)	(-5.79)	(-14.84)	(-9.92)	(-2.01)
N	2862	2844	2240	1064	2842	2824	2237	1061

Notes: See notes to Table 3. To examine the determinants of fund flow surges in the post-crisis period, we estimate the model with data from 2009.01 to 2013.06. The dependent variable is a binary variable equalling one if a surge occurs according to the GQK method. All equations are estimated using a probit model. *t* statistics in parentheses; *, ** and *** indicate significance at respectively 10%, 5% and 1% level.

Table 6. Occurrence of surges: advanced versus emerging market economies

Panel A: Equity flows

	Advanced economies				Emerging market economies			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
US industrial production	0.040***	0.034***	0.027***	0.029***	0.009*	0.004	0.010	0.025**
	(7.91)	(5.27)	(2.73)	(2.69)	(1.75)	(0.61)	(0.98)	(2.34)
US real interest	0.089***	0.103***	0.047*	0.013	-0.015	-0.009	-0.012	-0.085**
	(7.42)	(6.74)	(1.69)	(0.43)	(-1.29)	(-0.58)	(-0.41)	(-2.47)
US equity	0.0849***	0.019*	0.013	0.003	0.138***	0.062***	0.082***	0.083***
	(10.94)	(1.9)	(0.87)	(0.22)	(18.16)	(6.07)	(4.83)	(4.59)
TED spread	-0.262***	-0.058	-0.526***	-0.501***	-0.448***	-0.119	-0.353*	-0.377**
	(-3.11)	(-0.56)	(-3.26)	(-3.09)	(-5.18)	(-1.07)	(-1.88)	(-1.99)
VIX	0.035***	0.012	0.002	-0.006	0.054***	0.029***	0.037**	0.041**
	(4.55)	(1.18)	(0.11)	(-0.34)	(7.24)	(2.79)	(2.24)	(2.17)
Pol. uncertainty	-0.004***	-0.004**	-0.001	-0.004	-0.003**	-0.002	-0.005**	-0.006**
	(-3.51)	(-2.48)	(-0.64)	(-1.44)	(-2.10)	(-1.35)	(-2.21)	(-2.02)
Com. prices	-0.000	0.002**	-0.001	-0.002	-0.001	-0.002*	-0.001	-0.002
	(-0.62)	(2.56)	(-0.68)	(-1.24)	(-1.55)	(-1.87)	(-0.89)	(-1.09)
Geography		1.929***	1.790***	1.790***		2.045***	1.851***	1.881***
		(30.81)	(20.4)	(18.78)		(33.98)	(19.62)	(17.61)
Trade linkage		1.401***	2.880***	3.146***		2.340***	2.336***	1.941***
		(7.48)	(7.95)	(7.72)		(6.51)	(4.04)	(3.13)
Dom. industrial production			0.020***	0.019**			-0.003	-0.014*
			(3.14)	(2.53)			(-0.43)	(-1.84)
Dom. interest			0.021	0.023			-0.018	-0.009
			(0.95)	(0.94)			(-1.38)	(-0.60)
Dom. inflation			-0.009	-0.033			0.014	0.012
			(-0.45)	(-1.35)			(0.92)	(0.69)
Dom. equity			0.043***	0.036***			0.026***	0.026***
			(6.08)	(4.63)			(4.31)	(4.02)
Exp. REER depreciation			0.035***	0.035**			-0.036***	-0.040***
			(2.62)	(2.42)			(-3.21)	(-3.30)
Trade openness			-0.471***	-0.502***			-0.451***	-0.468***
			(-4.78)	(-4.46)			(-3.04)	(-2.76)
Credit growth			0.002	0.007			-0.001	-0.002
			(0.47)	(1.26)			(-0.52)	(-0.81)
Stock market capitalization			-0.000	-0.000			0.002	0.002
			(-0.51)	(-0.27)			(1.36)	(1.17)
Exchange rate regime				-0.018				-0.187***
				(-0.45)				(-2.75)
KAOPEN				-0.080				-0.015
				(-1.15)				(-0.36)
Constant	-0.843***	-1.474***	-1.464***	-1.244***	-0.693***	-1.458***	-1.222***	-0.685***
	(-35.28)	(-42.64)	(-15.14)	(-5.03)	(-28.19)	(-38.55)	(-6.97)	(-2.74)
N	4944	4657	3125	2432	4500	4012	1773	1290
Pseudo	0.071	0.419	0.496	0.509	0.095	0.463	0.476	0.473
Percent	75.95	89.05	91.01	90.5	71.49	88.88	88.16	86.9
Sensitivity	3.66	72.02	75.23	78.21	20.25	79.6	80.29	81.84

Panel B: Bond flows

	Advanced economies				Emerging market economies			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
US industrial production	0.029***	0.010	0.013	0.0230**	0.069***	0.034***	0.036***	0.030*
	(5.02)	(1.43)	(1.37)	(2.06)	(10.1)	(3.26)	(2.58)	(1.79)
US real interest rate	-0.182***	-0.005	-0.035	-0.0536	-0.187***	-0.018	-0.033	-0.044
	(-9.83)	(-0.20)	(-1.12)	(-1.34)	(-9.49)	(-0.62)	(-0.81)	(-0.74)
US equity returns	0.123***	0.060***	0.051***	0.064***	0.130***	0.042**	0.032	-0.005
	(11.55)	(4.15)	(3.17)	(3.42)	(10.94)	(2.34)	(1.39)	(-0.17)
TED spread	0.225**	0.181	0.276*	0.408**	-0.082	0.168	0.097	0.238
	(2.1)	(1.29)	(1.76)	(2.39)	(-0.69)	(0.95)	(0.4)	(0.92)
VIX	0.084***	0.037***	0.031**	0.048**	0.099***	0.043**	0.031	-0.015
	(8.1)	(2.67)	(2.03)	(2.54)	(8.54)	(2.45)	(1.45)	(-0.47)
Policy uncertainty	-0.003**	-0.001	-0.002	-0.003	-0.007***	-0.005**	-0.007**	-0.011**
	(-2.01)	(-0.59)	(-0.78)	(-1.10)	(-4.35)	(-2.19)	(-2.54)	(-2.29)
Commodity prices	-0.012***	-0.002*	-0.003*	-0.005**	-0.013***	-0.003**	-0.002	-0.001
	(-11.19)	(-1.91)	(-1.84)	(-2.47)	(-10.64)	(-2.05)	(-0.79)	(-0.25)
Geography contagion		2.103***	2.035***	2.139***		2.586***	2.270***	3.098***
		(25.67)	(20.18)	(15.67)		(27.16)	(17.94)	(15.1)
Trade linkage		1.173***	1.321***	1.007***		4.034***	5.723***	3.030***
		(6.12)	(4.91)	(3.07)		(6.1)	(6.41)	(2.84)
Dom. industrial production			-0.002	-0.007			0.001	0.004
			(-0.40)	(-0.87)			(0.13)	(0.31)
Dom. interest rate			-0.001	-0.031			-0.008	0.023
			(-0.01)	(-0.92)			(-0.47)	(0.89)
Dom. inflation			-0.010	-0.011			0.006	-0.026
			(-0.45)	(-0.38)			(0.26)	(-0.86)
Dom. equity returns			0.018**	0.016*			0.023***	0.022**
			(2.49)	(1.85)			(2.89)	(2.27)
Exp. REER depreciation			-0.012	-0.007			-0.019	0.010
			(-0.80)	(-0.40)			(-1.27)	(0.51)
Trade openness			-0.179**	-0.098			-0.572***	-0.123
			(-2.16)	(-0.95)			(-3.08)	(-0.49)
Credit growth			0.008	-0.003			-0.003	-0.001
			(1.54)	(-0.46)			(-0.81)	(-0.31)
Stock market capitalization			0.001*	0.0004			0.001	0.002
			(1.66)	(0.43)			(0.79)	(1.04)
Exchange rate regime				-0.067				-0.072
				(-1.35)				(-0.66)
KAOPEN				-0.202**				-0.088
				(-2.34)				(-1.29)
Constant	-1.075***	-1.660***	-1.695***	-0.934***	-0.929***	-1.854***	-1.550***	-1.835***
	(-28.66)	(-33.18)	(-15.96)	(-3.06)	(-22.93)	(-27.88)	(-6.56)	(-4.30)
N	2927	2906	2373	1680	2463	2423	1558	1075
Pseudo R-squared	0.099	0.485	0.493	0.565	0.121	0.649	0.654	0.762
Percent correctly predicted	78.17	90.95	90.81	92.14	72.43	93.73	93.13	96.00
Sensitivity	8.07	79.04	80.07	84.19	31.37	88.98	89.61	92.88
Specificity	98.46	94.37	93.95	94.88	89.73	95.72	94.75	97.51

Notes: See notes to Table 3. Low-income and middle-income economies are referred to as emerging economies. High-income economies are referred to as advanced economies. Economies are classified based on their 2012 GNI per capita, calculated using the World Bank Atlas method (see Appendix 1 for details).

Table 7. Sensitivity analysis for occurrence of surges: clog-log model

	Equity flows				Bond flows			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
US industrial production	0.037***	0.024***	0.028***	0.035***	0.079***	0.021***	0.019**	0.021**
	(7.38)	(4.35)	(3.36)	(3.96)	(12.03)	(3.23)	(2.11)	(2.04)
US real interest rate	0.038***	0.084***	0.057**	0.013	-0.239**	0.028	0.006	-0.013
	(3.46)	(5.92)	(2.31)	(0.48)	(-12.55)	(1.13)	(0.18)	(-0.32)
US equity returns	0.151***	0.045***	0.054***	0.045***	0.172***	0.041***	0.035**	0.039**
	(21.15)	(4.90)	(3.88)	(3.20)	(15.76)	(3.27)	(2.40)	(2.28)
TED spread	-0.530**	-0.197*	-0.579**	-0.568**	0.055	0.293*	0.350*	0.440**
	(-6.15)	(-1.83)	(-3.48)	(-3.46)	(0.46)	(1.79)	(1.76)	(2.05)
VIX	0.061***	0.021**	0.023*	0.021	0.125***	0.024*	0.019	0.017
	(8.77)	(2.30)	(1.69)	(1.45)	(12.02)	(1.87)	(1.33)	(0.99)
Policy uncertainty	-0.004**	-0.004**	-0.003	-0.004*	-0.005**	-0.003**	-0.004**	-0.005**
	(-3.64)	(-2.80)	(-1.57)	(-1.83)	(-3.81)	(-2.20)	(-2.10)	(-1.97)
Commodity prices	-0.001	0.000	0.000	-0.001	-0.018**	-0.005**	-0.005***	-0.002
	(-1.51)	(0.21)	(-0.38)	(-0.64)	(-15.36)	(-3.43)	(-2.82)	(-0.94)
Geography contagion		2.689***	2.500***	2.466***		3.402***	3.168***	3.625***
		(48.75)	(30.09)	(26.53)		(39.62)	(29.23)	(23.56)
Trade linkage		1.008***	2.608***	2.676***		0.327**	1.203***	0.502
		(7.66)	(8.02)	(7.50)		(2.29)	(4.10)	(1.43)
Dom. industrial production			0.009	0.002			0.007	0.005
			(1.61)	(0.25)			(1.25)	(0.68)
Dom. interest rate			0.018	0.025*			0.013	0.022
			(1.41)	(1.76)			(0.85)	(1.08)
Dom. inflation			0.005	-0.007			0.008	-0.028
			(0.31)	(-0.44)			(0.50)	(-1.35)
Dom. equity returns			0.042***	0.036***			0.030***	0.023***
			(7.37)	(6.11)			(4.72)	(3.14)
Exp. REER depreciation			-0.003	-0.009			-0.005	0.010
			(-0.32)	(-0.90)			(-0.44)	(0.65)
Trade openness			-0.608**	-0.620**			-0.370***	-0.194
			(-5.58)	(-5.19)			(-3.40)	(-1.44)
Credit growth			-0.002	-0.002			0.002	-0.001
			(-0.60)	(-0.82)			(0.49)	(-0.34)
Stock market capitalization			0.000	0.000			0.000	0.000
			(-0.39)	(-0.31)			(0.60)	(-0.03)
Exchange rate regime				-0.080**				-0.105**
				(-2.06)				(-2.13)
KAOPEN				-0.079**				-0.133***
				(-2.42)				(-3.22)
Constant	-1.424**	-2.485**	-2.404**	-1.998**	-1.748**	-2.905**	-2.827***	-2.518***
	(-53.77)	(-56.19)	(-22.29)	(-12.11)	(-39.94)	(-41.15)	(-22.24)	(-11.91)
N	9444	8669	4898	3722	5390	5329	3931	2755

Notes: See note to Table 3. The dependent variable is a binary variable, which equals one if a surge occurs according to the GQK method. All the equations are estimated using a complimentary log-log model. *t* statistics in parentheses; *, ** and *** indicate significance at respectively 10%, 5% and 1% level.

Table 8. Sensitivity analysis for surge occurrence and surge magnitude (equity flows)

	Surge occurrence				Surge magnitude		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Region dummy	RR surge	Contagion	EU policy uncertainty	Region dummy	Contagion	EU policy uncertainty
US industrial production	0.027***	0.034***	0.025***	0.026***	0.041**	0.033*	0.030*
	(3.69)	(4.75)	(3.58)	(3.65)	(2.37)	(1.88)	(1.71)
US real interest rate	-0.019	-0.004	-0.000	-0.026	-0.102*	-0.123**	-0.124**
	(-0.83)	(-0.16)	(-0.02)	(-1.18)	(-1.85)	(-2.27)	(-2.27)
US equity returns	0.033***	0.028**	0.045***	0.040***	0.029	0.038	0.047*
	(2.91)	(2.47)	(4.14)	(3.46)	(1.11)	(1.40)	(1.75)
TED spread	-0.436***	-0.290**	-0.455***	-0.475***	0.222	0.327	0.319
	(-3.54)	(-2.36)	(-3.71)	(-3.95)	(0.61)	(0.89)	(0.87)
VIX	0.015	0.016	0.006	0.016	0.039	0.048*	0.057**
	(1.18)	(1.30)	(0.51)	(1.34)	(1.40)	(1.71)	(2.01)
Policy uncertainty	-0.004**	-0.002	-0.001	0.001	0.004	0.004	0.006**
	(-2.27)	(-1.07)	(-0.62)	(1.42)	(0.97)	(0.95)	(2.14)
Commodity prices	-0.001	-0.001	-0.001	-0.001	-0.002	-0.003	-0.003
	(-0.82)	(-0.96)	(-1.03)	(-1.23)	(-0.76)	(-1.13)	(-1.12)
Geography contagion	1.874***	1.568***	1.369***	1.843***	-0.011	-0.230	-0.000
	(26.40)	(22.41)	(18.72)	(26.70)	(-0.06)	(-0.75)	(-0.00)
Trade linkage	2.710***	2.833***	4.966***	2.625***	0.853	0.694	0.556
	(8.30)	(9.02)	(16.19)	(8.17)	(1.44)	(1.28)	(0.96)
Dom. industrial production	0.002	-0.009*	0.004	0.003	-0.050***	-0.043***	-0.041***
	(0.43)	(-1.81)	(0.73)	(0.57)	(-4.34)	(-3.67)	(-3.53)
Dom. interest rate	0.013	0.009	0.024**	0.014	-0.005	0.009	0.006
	(1.08)	(0.76)	(2.19)	(1.24)	(-0.21)	(0.39)	(0.25)
Dom. inflation	-0.023	-0.008	-0.007	-0.005	0.050	0.129***	0.132***
	(-1.56)	(-0.61)	(-0.53)	(-0.35)	(1.57)	(4.42)	(4.53)
Dom. equity returns	0.027***	0.025***	0.026***	0.029***	0.036***	0.039***	0.038***
	(5.68)	(5.21)	(5.63)	(6.10)	(3.39)	(3.59)	(3.49)
Exp. REER depreciation	-0.006	-0.002	0.002	-0.006	-0.062***	-0.070***	-0.067***
	(-0.73)	(-0.21)	(0.20)	(-0.74)	(-3.07)	(-3.46)	(-3.31)
Trade openness	-0.436***	-0.775***	-0.882***	-0.403***	0.029	0.232	0.259
	(-4.48)	(-7.78)	(-10.08)	(-4.61)	(0.13)	(1.19)	(1.27)
Credit growth	-0.003	0.002	-0.004	-0.001	-0.004	-0.007	-0.006
	(-1.09)	(0.91)	(-1.63)	(-0.54)	(-0.77)	(-1.24)	(-1.14)
Stock market capitalization	0.000	0.002***	-0.000	0.000	-0.001	-0.002*	-0.002*
	(0.64)	(2.81)	(-0.24)	(0.14)	(-0.99)	(-1.76)	(-1.73)
Exchange rate regime	-0.060	-0.118***	0.038	-0.042	-0.348***	-0.161**	-0.162**
	(-1.46)	(-3.66)	(1.25)	(-1.32)	(-3.96)	(-2.22)	(-2.22)
KAOPEN	-0.117***	0.016	-0.118***	-0.095***	-0.446***	-0.261***	-0.255***
	(-3.09)	(0.58)	(-4.53)	(-3.45)	(-5.52)	(-4.43)	(-4.32)
Constant	-0.691***	-1.146***	-1.453***	-1.143***	3.222***	2.053***	1.810***
	(-2.83)	(-8.69)	(-10.59)	(-8.91)	(4.45)	(5.06)	(5.82)
N	3722	3722	3722	3711	1071	1071	1067

Notes: For surge episodes, the dependent variable is a binary variable, which equals one if a surge occurs according to the GQK method or RR method. For the surge magnitude, the dependent variable is the fund flows scaled by assets under management conditional on surge episodes defined by GQK method. Column (1) to column (4) are estimated using a probit model. Column (5) to column (7) are estimated using OLS. t statistics in parentheses; *, ** and *** indicate significance at respectively 10%, 5% and 1% level. The sensitivity tests are as follows: "Region dummy" indicates that model estimated with region dummies. "RR method" means that employing surges identified with RR method. "Contagion" indicates that contagion variable takes value one if at least one of the countries in the same area is experiencing surge. "Policy uncertainty of EU" indicates changing variable policy uncertainty in US to policy uncertainty in EU. These sensitivity analyses are based on equity flows, the outcomes for bond flows are available upon request.

Table 9. Out of sample prediction

Panel A: Equity flows	TRUE		
	Surge (D)	Non-Surge (-D)	Total
Classified as Surge (+)	78	23	101
Classified as Non-surge (-)	39	496	535
Total	117	519	636
Sensitivity	Pr(+/D)		66.67%
Specificity	Pr(-/-D)		95.57%
Correctly classified	No.(+/D)+No.(-/-D)/Total		90.25%

Panel B: Bond flows	TRUE		
	Surge (D)	Non-Surge (-D)	Total
Classified as Surge (+)	97	31	128
Classified as Non-surge (-)	35	473	508
Total	132	504	636
Sensitivity	Pr(+/D)		73.48%
Specificity	Pr(-/-D)		93.85%
Correctly classified	No.(+/D)+No.(-/-D)/Total		89.62%

Notes: For equity flows, we use the data from 1996.01-2012.06 as sample set and the data from 2012.07 to 2013.06 as test set. For bond flows, we use the data from 2004.01-2012.06 as sample set and the data from 2012.07 to 2013.06 as test set. We have 636 test samples altogether. Classified + if predicted Pr (D)>=0.5.

Table 10. Magnitude of surges: baseline model

	Equity flows				Bond flows			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
US industrial production	-0.008	-0.009	0.013	0.031*	0.053***	0.052***	0.019**	0.026***
	(-0.91)	(-0.96)	(0.81)	(1.81)	(7.28)	(7.34)	(2.32)	(2.82)
US real interest	0.003	-0.002	-0.010**	-0.127**	-0.113***	-0.057**	-0.115***	-0.186***
	(0.14)	(-0.07)	(-2.08)	(-2.34)	(-4.17)	(-2.09)	(-3.94)	(-5.42)
US equity	0.016	0.021	0.024	0.035	0.076***	0.073***	0.089***	0.110***
	(1.19)	(1.39)	(0.98)	(1.32)	(5.36)	(5.27)	(6.49)	(7.04)
TED spread	-0.291*	-0.148	0.264	0.320	0.575**	0.531**	0.591**	0.062
	(-1.67)	(-0.79)	(0.76)	(0.87)	(2.51)	(2.31)	(2.33)	(0.22)
VIX	0.020	0.024	0.042	0.048*	0.094***	0.092***	0.092***	0.111***
	(1.34)	(1.49)	(1.63)	(1.69)	(6.62)	(6.61)	(6.84)	(7.01)
Policy	0.006**	0.005*	0.006	0.005	-0.001	-0.001	-0.000	-0.003
	(2.35)	(1.90)	(1.48)	(0.97)	(-0.62)	(-0.53)	(-0.16)	(-1.38)
Commodity	-0.000	0.0001	-0.006**	-0.003	-0.016***	-0.011***	-0.013***	-0.002
	(-0.16)	(0.01)	(-2.50)	(-1.18)	(-10.06)	(-6.90)	(-7.72)	(-0.74)
Geography		0.232**	0.125	0.004		0.555***	0.491***	0.493***
		(2.54)	(0.79)	(0.02)		(5.88)	(4.85)	(3.61)
Trade linkage		-0.165	0.431	0.604		1.048***	0.616***	0.735**
		(-0.89)	(0.85)	(1.04)		(6.90)	(2.61)	(2.41)
Dom. industrial production			-0.023**	-0.042***			0.027***	0.009*
			(-2.30)	(-3.64)			(6.21)	(1.66)
Dom. interest			0.004	0.008			0.021*	0.011
			(0.21)	(0.34)			(1.65)	(0.70)
Dom. inflation			0.167***	0.131***			0.011	-0.010
			(6.84)	(4.50)			(0.80)	(-0.57)
Dom. equity			0.038***	0.038***			0.0237**	0.017***
			(3.84)	(3.53)			(3.91)	(2.59)
Exp. REER depreciation			-0.062***	-0.070***			0.003	0.001
			(-3.32)	(-3.46)			(0.30)	(0.07)
Trade openness			0.206	0.248			0.172*	0.309**
			(1.13)	(1.22)			(1.83)	(2.53)
Credit growth			-0.002	-0.007			0.006**	0.007**
			(-0.38)	(-1.26)			(2.29)	(2.19)
Stock market capitalization			-0.002*	-0.002*			0.001	-0.000
			(-1.80)	(-1.71)			(0.91)	(-0.42)
Exchange rate regime				-0.160**				0.084*
				(-2.20)				(1.93)
KAOPEN				-0.257***				-0.168***
				(-4.37)				(-4.83)
Constant	1.913***	1.760***	0.847***	1.828***	2.990***	2.434***	1.887***	2.212***
	(39.75)	(21.84)	(4.23)	(5.87)	(52.47)	(27.10)	(15.92)	(10.95)
N	2517	2291	1212	1071	1387	1366	1028	781

Notes: Dom., exp., cap. are the short for domestic, expected, and capitalization, respectively. The dependent variable is fund flows scaled by asset under management conditional on surge episodes defined by the GQK method. All equations are estimated using OLS. *t* statistics in parentheses; *, ** and *** indicate significance at respectively 10%, 5% and 1% level.

Table 11. Magnitude of surges: advanced versus emerging market economies

Panel A: Equity flows

	Advanced economies				Emerging market economies			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
US industrial production	-0.002	0.000	0.001	0.013	-0.005	-0.007	0.012	0.032
	(-0.21)	(0.01)	(0.13)	(1.53)	(-0.38)	(-0.48)	(0.40)	(0.96)
US real interest rate	0.067***	0.078***	-0.045**	-0.023	-0.054	-0.056	-0.150	-0.285**
	(3.23)	(3.70)	(-2.21)	(-1.09)	(-1.52)	(-1.35)	(-1.50)	(-2.40)
US equity returns	0.000	0.002	-0.004	-0.013	0.014	0.022	0.048	0.093
	(0.04)	(0.18)	(-0.43)	(-1.22)	(0.62)	(0.85)	(0.90)	(1.60)
TED spread	-0.165	0.012	-0.045	0.004	-0.396	-0.272	0.492	0.238
	(-1.05)	(0.08)	(-0.32)	(0.03)	(-1.33)	(-0.83)	(0.67)	(0.31)
VIX	-0.000	-0.004	-0.003	-0.010	0.033	0.045*	0.073	0.105*
	(-0.02)	(-0.29)	(-0.25)	(-0.82)	(1.39)	(1.70)	(1.42)	(1.87)
Policy uncertainty	0.004	0.002	0.002	0.003	0.007	0.007	0.008	0.003
	(1.58)	(0.81)	(1.43)	(1.56)	(1.61)	(1.52)	(1.07)	(0.38)
Commodity prices	0.007***	0.008***	0.000	0.001	-0.005**	-0.005*	-0.008*	-0.006
	(4.42)	(5.16)	(0.05)	(0.91)	(-2.15)	(-1.85)	(-1.79)	(-1.21)
Geography contagion		0.269***	0.279***	0.227***		0.092	-0.106	0.150
		(3.56)	(4.38)	(3.32)		(0.55)	(-0.31)	(0.36)
Trade linkage		-0.072	0.436**	0.608***		1.245**	1.683	1.023
		(-0.56)	(2.40)	(3.11)		(2.24)	(1.07)	(0.58)
Dom. industrial production			0.004	-0.009			-0.035*	-0.061***
			(0.88)	(-1.64)			(-1.89)	(-2.73)
Dom. interest rate			0.016	-0.021			-0.024	0.008
			(1.13)	(-1.28)			(-0.63)	(0.19)
Dom. inflation			0.050***	0.039**			0.227***	0.225***
			(3.82)	(2.34)			(5.07)	(4.28)
Dom. equity returns			0.022***	0.022***			0.049***	0.049***
			(4.04)	(3.76)			(2.85)	(2.66)
Exp. REER depreciation			-0.024**	-0.023**			-0.083**	-0.093**
			(-2.44)	(-2.24)			(-2.45)	(-2.52)
Trade openness			0.013	0.081			0.030	-0.103
			(0.19)	(1.12)			(0.06)	(-0.17)
Credit growth			-0.004	-0.001			-0.005	-0.016*
			(-1.31)	(-1.00)			(-0.56)	(-1.81)
Stock market capitalization			-0.001	-0.001***			-0.002	0.001
			(-1.36)	(-2.72)			(-0.52)	(0.24)
Exchange rate regime				0.058**				-0.926***
				(2.15)				(-4.50)
KAOPEN				-0.217***				-0.144
				(-4.67)				(-1.20)
Constant	1.712***	1.527***	0.911***	1.415***	2.107***	1.923***	1.032*	3.129***
	(39.12)	(23.17)	(12.16)	(8.16)	(25.24)	(12.86)	(1.70)	(3.80)
N	1174	1090	654	592	1343	1201	558	479

Panel B: Bond flows

	Advanced economies				Emerging market economies			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
US industrial production	0.040***	0.037***	0.011	0.014	0.061**	0.057**	0.039**	0.045***
	(3.95)	(3.84)	(0.96)	(1.06)	(5.72)	(5.55)	(3.18)	(3.23)
US real interest rate	-0.114***	-0.043	-0.153**	-0.189**	-0.122*	-0.090*	-0.070*	-0.198***
	(-2.72)	(-1.02)	(-3.43)	(-3.66)	(-3.53)	(-2.66)	(-1.75)	(-4.17)
US equity returns	0.074***	0.060***	0.094***	0.108***	0.081**	0.091**	0.084**	0.120***
	(3.51)	(2.96)	(4.83)	(4.96)	(4.39)	(5.07)	(4.45)	(5.36)
TED spread	0.379	0.027	0.403	-0.275	0.869**	0.931**	0.703**	0.462
	(1.02)	(0.07)	(1.03)	(-0.62)	(3.05)	(3.32)	(2.12)	(1.26)
VIX	0.107***	0.091***	0.102***	0.106***	0.081**	0.092**	0.079**	0.116***
	(5.09)	(4.48)	(5.37)	(4.95)	(4.34)	(5.12)	(4.26)	(5.08)
Policy uncertainty	-0.003	-0.003	-0.002	-0.005*	0.002	0.002	0.003	-0.001
	(-1.25)	(-1.24)	(-0.97)	(-1.76)	(1.04)	(1.14)	(1.37)	(-0.34)
Commodity prices	-0.013***	-0.009**	-0.012**	-0.002	-0.020*	-0.015*	-0.014*	0.001
	(-5.89)	(-3.83)	(-5.09)	(-0.56)	(-8.90)	(-6.65)	(-5.43)	(0.26)
Geography		0.117	0.224	0.116		0.883**	0.682**	1.097***
		(0.91)	(1.63)	(0.64)		(6.32)	(4.32)	(4.55)
Trade linkage		1.546***	0.872***	1.137***		1.073**	1.024**	0.250
		(8.55)	(3.03)	(3.03)		(3.23)	(1.98)	(0.38)
Dom. industrial production			0.022***	0.011			0.023**	-0.002
			(3.49)	(1.38)			(3.39)	(-0.24)
Dom. interest rate			0.058*	0.023			-0.015	-0.009
			(1.74)	(0.51)			(-0.99)	(-0.48)
Dom. inflation			-0.014	-0.011			0.008	-0.002
			(-0.58)	(-0.40)			(0.41)	(-0.10)
Dom. equity returns			0.016*	0.019*			0.027**	0.017**
			(1.66)	(1.69)			(3.81)	(2.01)
Exp. REER depreciation			0.018	0.027			-0.009	-0.001
			(0.84)	(1.12)			(-0.68)	(-0.05)
Trade openness			0.154	0.238			-0.072	0.199
			(1.28)	(1.54)			(-0.37)	(0.76)
Credit growth			0.008	0.013**			0.002	0.003
			(1.37)	(1.97)			(0.72)	(0.86)
Stock market capitalization			0.001	-0.000			-0.000	0.001
			(0.75)	(-0.53)			(-0.03)	(0.56)
Exchange rate regime				0.159***				-0.075
				(2.81)				(-0.97)
KAOPEN				-0.073				-0.096*
				(-0.73)				(-1.89)
Constant	2.822***	2.477***	1.895***	2.013***	3.139**	2.289**	2.290**	2.405***
	(33.23)	(21.40)	(12.20)	(5.40)	(41.49)	(16.75)	(9.34)	(6.18)
N	657	649	537	430	730	717	491	351

Notes: See note to Table 10. Low-income and middle-income economies are referred to as emerging market economies. High-income economies are referred to as advanced economies. Economies are classified based on their 2012 GNI per capita, calculated using the World Bank Atlas method (see Appendix 1 for details).